Architectural Composition

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ARCHITECTURAL COMPOSITION

By D. VARON

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With 40 Plates of Illustrations by the Author

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This book is dedicated to my relatives and friends.

I wish to acknowledge thanks to Mr. M. F. Behar
for his very helpful suggestions
in editing.

D. VARON

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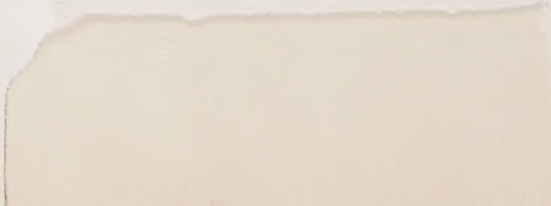


ARCHITECTURAL DESIGN

INTRODUCTION

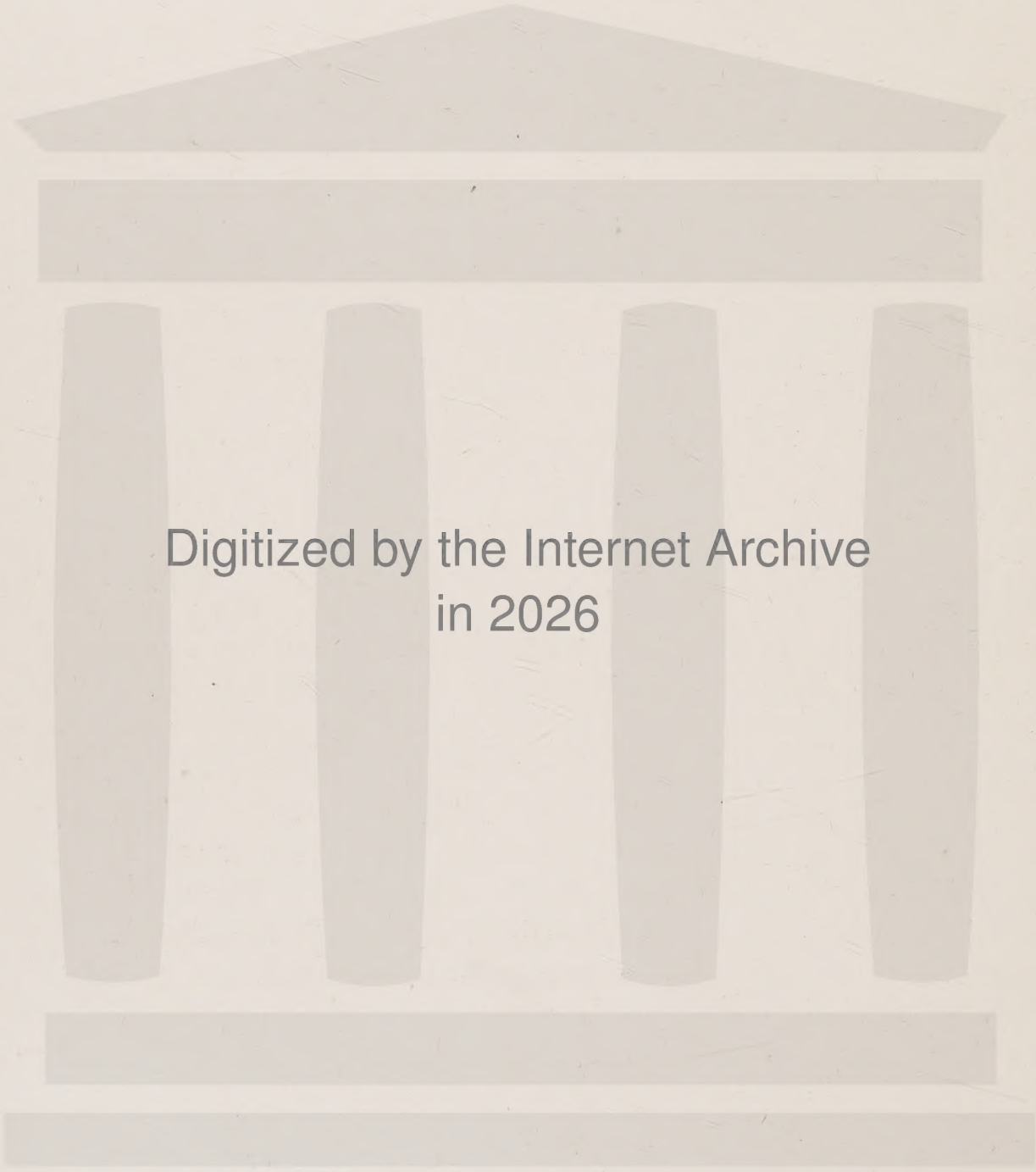
FEW among us realize what taking architecture as a profession means in terms of responsibility. But the architect who is true to himself is an artist and as such he has a great influence on the development of the intelligence and spirituality of his community. His thought is expressed in brick and stone, but not less eloquently or effectively than the writer's—even more so at times. For his work stands ever-present and reacts through the conscious or subconscious mind of the trained and untrained, for good or evil, according to the quality of his productions.

Many communities have been greatly encouraged on the road to falsehood and make-believe through the works of their thinkers, among them the architects. The latter may have thought it harmless to use sham materials, to imitate costly marbles and granites in the erection of a public building. Since they, the professionals, set up a wrong standard of morals, the other members of the community follow in their wake, thinking that shrewdness is a near virtue. But just as the visitor is offended by the glaring sham in the public building, so is he wary of the hypocritical attitude of those who erected it. This is the natural law of compensation.

No man of true education has ever attained the commandership of an army or to the presidency of a nation because these positions are highly remunerative, but because he found in them his calling.

If the student architect likewise feels the *calling* to educate through art, or if at least he is conscious of the influence his work is to have in inculcating into the masses the guiding principles of *truth* and *service* allied to *beauty,* then let him be ushered into the assembly of his elders. He certainly must be aware that if the generation of to-morrow shows proclivities for good citizenship, high aspirations, refined taste, and self-control—or for the antitheses of these virtues—the law of compensation shall deem him largely responsible for it.

The architect must realize that as an artist he is a thinker, a preacher and a doctor all in one. Through the artistic merits of his work he can greatly help to reform, uplift, and cure; and all this he does by being true to his art and to himself.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FOREWORD

ARCHITECTURE being a fine art it follows that the method used in studying it ought to be inspired from methods used in other arts, among which is literature. From time immemorial it has been customary, in cultivating the letters, to read carefully, analyze, and partly memorize the world's famous masterpieces, and with much personal thinking assimilate the principles underlying the great qualities of each important work of art. In this way the student is enabled to find not only ideas, but also proper expressions consecrated by generations, and which are very important in order to make his own conceptions better appreciated, because better understood.

Generations have likewise consecrated some forms and ornaments in architecture. It is therefore wise that the would-be architect start with the study of the masters, not by any means with the idea of cultivating plagiarism, but rather to inspire himself from them. The architect who built that famous church, St. Eustache, in Paris, inspired himself from a Gothic cathedral, and yet it is not by any means a copy of the latter. He poured into this splendid work his own personality, which makes it greatly worth studying for its own merits. Through a long process of groping for the method of construction, and also through the desire of expressing the idea of reverence, of majesty, the Gothic architects reached the pinnacle of honor in discovering the right proportions (nobody could tell with certainty to what degree they were helped in this research by their love of nature), and it is this principle that the architect of St. Eustache borrowed. This is what any student-architect is supposed to do when inspiring himself from a master. Through the analysis of his works he shall learn gradually to find for himself the source of inspiration, and to create in turn.

But assuming that the suggestion to adapt to the study of architecture the same process as that of other arts is gladly accepted by the student, he will naturally ask himself, "How shall I start?" It is the object of this treatise to answer this query.

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TABLE OF CONTENTS

PAGE

INTRODUCTION VI

FOREWORD VIII

CHAPTER

I—On the simplest forms of plan elements used in small and large simple compositions, and the classic examples illustrating them 1

II—How to study the classic elementary-plan edifices; silhouettes, indications and detailed drawings 4

III—Plan elements considered as incorporated especially as features in famous compositions 7

IV—Semi-complex design; summing up a whole program in its title; the most usual simple forms affected by semi-complex plans 10

V—Complex design. A new plan element; the court unit. The court as a feature amid other courts. True object of composition in our present day 15

VI—Units of architectural composition, small and large, their various combinations fostered by physical and mechanical considerations. The aesthetic value in relation to the rhythm of a structure 17

VII—Rhythm, as it is seen in nature, in other arts and in architectural composition. Examples from the past and modern times 22

VIII—Architectural scale, its definition; examples from nature and from architectural compositions. Hugeness and symbolization. Compositions considered in their whole from a point 26

IX—Expression: power, grace, joy and solemnity as expressed in architectural compositions of the past and modern times. 30

X—Harmony; unity of a complex whole; harmony of a structure with its program, with its environment, and with the aspirations of the community 33

XI—Conclusion; studying a famous plan in the lights of rhythm, expression and harmony 35

CHAPTER I

ARCHITECTURAL DESIGN

WHAT is architectural design? It is the art of putting together the various parts, of a structure of whatever class or character, in a way to satisfy best the conditions imposed by the program and the laws of harmony. A mere glance over a work of real merit will help understand this very clearly. Let us consider the plan of Esquié's Grand Prix de Rome. (Plate 1.) Even a beginner, nay, a mere layman, will proclaim it a beautiful plan, so simple, so clear does it look, and yet so full of expression. But neither of the two would be able to say why this plan is beautiful, for it requires the power of analysis to point out its qualities. With the purpose of showing him the first step in design I proceed in the next plate (Plate 2) to throw the same plan into its parts. A first survey of this operation shows how varied these elements are; yet the general appearance of the composition is so plain, in spite of striking differences between one hall and another, between the various circulations; in other terms, in spite of a great variety in the component parts.

After looking at this for a while one is naturally led to ask himself "How varied can the simple plan elements be?" Plate 5 answers this question by showing some of the plain geometrical figures which a plan element may assume, beginning with the triangle, and Plate 6 shows some combinations of these elements. We have extant examples of works of great merit, the respective composition of which is constituted by these simple forms, with walls, with columns, or both. This is shown in Plate IX. Beginning with the square, which is found applied to such plans as a chapel (St. Andrea, near Rome) or of a tomb, at Agrigente (Sicily) it goes on to show the application of other simple geometric forms to other remarkable structures which may still be seen and admired.

The lesson taught by Plate V is very important, for it shows that beauty

does not depend upon elaboration, particularly in plan; most often, on the contrary, it rests on the greatest simplicity.

Once this is set forth it is for the student to go over each one of these examples in the proper way, so as to find out almost by himself the laws of composition. How should he proceed? "Give thyself a master" runs an ancient saying. Piranesi in his immortal works of engraving shows us how to look upon architecture in order to interpret its productions with emotion. He looked upon our art as nothing short of sculpture, only more transcendental; for while sculpture inspires itself more directly from nature, architecture only interprets nature's laws in its creations. To make his beautiful plates Piranesi went about his work as many a great painter did, that is, he lived amid the world of architecture just as artists have steeped themselves in "atmosphere" which is Nature. Take, for instance, Corot. With what love he must have looked upon nature's awakening. Even so did Piranesi to obtain the beautiful contrasts which abound in his works. With lights and shades he brings out forcefully the contrasts of the masses. He knows the characteristics of each line: the vertical, the horizontal, the curved; the squat mass and the slender, and knows how to accentuate them for our great delight. (Percier and Fontaine are also famous for their works of engraving which dealt especially with Italian villas.)

Not everyone can be a Piranesi, but it is natural to expect a prospective architect to attempt to interpret his work as any musical student endeavors to play the works of great masters. He should at least strive to study fragments of architecture in about the same way, that is, feeling the expressive power of architecture. Such practice is essential before one may expect to compose. It is advisable to push this practice far enough in order to be able to render some works of great masters from memory or at least with great ease from the model.

Each one of the examples of Plates IX, X and XI, ought to be studied in plan, elevation, and section; but above all in perspective, making on one sheet a special endeavor to express the beauty of line and on the other that of mass through light and shade, never forgetting the importance to be attached to the silhouette of a structure, and the characteristic of its dominant line.

The study of such a variety of types, each one with its own expression, would allay in a measure the danger of starting in our art with a Vignola in which (outside of some very good exceptions) everything is tacked down to inflexible rules, which the beginner does not know how to interpret.

Each one of the proposed examples, or some similar to them, which might prove of more interest to the student, ought to be gone over while bearing in mind the following items: expression, units, rhythm, scale, harmony (to each one of which topics a special chapter is here devoted). The object of analyzing a masterpiece under these lights is to help one fasten more forcefully, because more agreeably, upon his memory the impressions made by it and its peculiar characteristics, to the effect that he may gradually reach the point when he can with a few deft strokes of the pencil suggest the masterpiece. This process leads one also, naturally, to assimilate the works of art of the past, so that he develops a fertile ground on which to feed his own imagination. All this can be achieved on one condition: That the study of the masters' works should always be accompanied by that of the infinite wonders of nature, obedience to whose laws is consciously or unconsciously the root of most artists' great creations.

CHAPTER II

ELEMENTARY EDIFICES

WE have been considering some of the plans composed of simple and combined geometric forms, and we have seen some of their possibilities as exemplified by extant edifices answering each some particular program. The reason they are shown in the plates on small scale is to emphasize the fact that it is not enough for details to be lovely, but the whole must be interesting as a mass. Nature gives us a perfect lesson when we consider a simple tree. A single leaf seen at close range may be beautiful, but this is not what counts from a distance. The sturdy oak, the graceful elm, the soft willow, owe their peculiar quality to the respective shape of their masses. The leaf is lost in the mass of leaves.

Likewise in architectural composition. It is not the peculiar form of any detail that the artist will first be concerned with, but the general masses —according to whether he will desire his edifice to be powerful, light, aspiring, rhythmic, massive, etc. Therefore each one of the structures suggested in the Plates IX, X, XI, will have to be considered as silhouettes and will be classified in the mind as expressive of either strength, grace, or an alloy of both, to the evolving of which such items as climate, destination, tradition, etc., have greatly contributed. Each example should be studied also in comparison with others so as the better and the more strongly to establish the respective individuality of each, through similarities and contrasts. It will be well to study nature from the same points of view and to see what are the rhythms impressing us with power, grace, and charm. The gentle outline of the distant hills or the massiveness of the shady tree in the foreground will oftentimes guide us in our search for the proper silhouette in the study of our problems. It will be well then to imagine each of the classic examples above mentioned, as they would appear through the mist and at dusk, when nothing is to be seen of them but their general outline, in elevation and also in perspective. What a

range from the massiveness of the pyramids to the lace-like designs of some spires (see Burgos Cathedral in Spain)! These silhouettes ought to be filled in either with a soft pencil shading or with a light purplish wash, to have as nearly as possible the impression one would expect when seeing them in nature, and each silhouette should be suggested on a rather small scale, so as to justify the lack of detail in the outline.

We must always bear in mind the importance of this preliminary study, particularly in countries where mists prevail almost all year round, as in northern climates, to which consideration we owe so many charming belfries and other towers, Antwerp, Brussels, etc. The succeeding studies will have to be done at a much larger scale, calling for the indication of more precise detail. Now, if the general mass has proved to be of a certain definite character, strong or light, rich or plain, the details ought to keep in harmony with the general impression. How true this is of the choragic monument of Lysicrates (at Athens), the richness of the general outline of which is well borne out by the details from base to top, obeying the principle of gradation in interest leading to a climax.

The advantages of studying classic edifices and compositions in this manner are obvious. It leads naturally to conceive one's own compositions in a similar spirit, i. e., beginning with a very small sketch of the whole, affirming its character, and developing gradually the details as the scale increases and when parts are considered by themselves.

It is to set forth in what spirit one should begin to increase the scale looking for more details that I give the Plates XII, XIII and XIV, showing three of the previous examples enlarged in perspective. What is done here with pen and ink may be done with any other medium and on a much larger scale, giving more and more detail as the scale increases, yet holding each element, through proper rendering, in its right relationship to the other parts and to the whole. (The true renderer knows what to accentuate and what to subdue as the musician knows when and where to use either the loud pedal or the soft one.) No sooner do we come close enough to a building to be able to discover the main component elements than we begin to see the part played by vertical and horizontal lines in the form of breaks or recesses, establishing an artistic demarcation between one part

and another. Cornices and belt courses often have the same effect, in preparing the eye for the transition from one element to a greater or lesser one, and thus helping to distinguish the essential from the subordinate. The dominating of either vertical or horizontal will be one of the chief aspects of the study on larger scale, according to the purpose of the structure and the spirit in which it was conceived. It will prove interesting to apply this method of analysis to any good example at home—the New York City Hall, the Capitol at Washington, etc.

CHAPTER III

PLAN ELEMENTS INCORPORATED

IN the foregoing chapters we have been considering structures in which the one plan element, simple or compound, plays the whole part. It is the purpose of this chapter to show the various elements in association with other elements especially as dominant factors.

A plan element may occupy various positions: dominant, subordinate, or equal. In the plans of Palazzo Barberini in Rome and of the Château de Vaux le Vicomte (Plate VII) the ellipse occupies a place of honor. In the latter it is less elongated than in the former, being crowned with a dome, a form of roof more compatible with the circle as a base. (We see a number of such domes on elliptical bases, such as that of the French Academy in Paris, and others.) In the one of the Château de Vaux we can also state that it is featured outwardly; whereas in the Palazzo Barberini it is only so in the interior, where it becomes rather the climax of interest in the plan. (That part of Letarouilly's* text referring to this structure is worth reading.) A sense of restraint made it imperative to observe a certain majestic simplicity in the elevation and to this end no matter how great the intrinsic beauty of each separate element was, it had to fall in line with others of lesser beauty in order to conform to the need

*Letarouilly (Paul) spent his lifetime making very carefully measured drawings of edifices of modern Rome, as it was seen in the Renaissance. He also devoted much time and energy in drawing the Vatican. His work will for a long time serve as an inspiration in architectural composition and in draughtsmanship (particularly the original engravings). It is most important to note, too, that the famous artist devoted as much time and energy to the making of perspective drawings which are the very perfection of their kind. To this sort of perspective we cannot help referring the designer who is in need of learning the good interpretation of a composition in line perspective. This master took pains to give us his impressions of even a very unassuming, but interesting little house, because he found in it much charm due to the reasonable fulfilment of a program in observing the principles of true art. He loved these principles above all and he could not help giving them proper publicity whenever he met them. Thus to him an arch was beautiful when it was made out of the proper materials and not of imitations. He abhorred sham. Wherever he met with beauty coming of perfection in construction he could not help rendering it homage. A coat may be cut in several ways with a view to protecting its wearer first. But we also require that it be graceful as well as serviceable. It has often been demonstrated that an object reaches its highest degree of beauty together with that of good service. A surplus of material often proves objectionable to both reason and the sense of aesthetics.

of the exterior. This consideration is of paramount importance, especially in large compositions involving a great variety of interesting elements, for if each one should receive outwardly the proper expression there would be little rest to the eye and confusion would ensue.

The principle, however, suffers exceptions. The great museum of the Vatican, Plate VII, is one of them. In it we can see almost any form of plan element and many of them given due exterior expression. This may be easily explained by the fact that in this famous museum—and it ought to be a lesson of any museum of importance—architecture is in itself considered as a worthy object of exhibition. Therefore many of the halls succeeding each other vary in shape and treatment as well as in contents, yet the whole remains harmonious.

When a plan element is featured it is necessary to take into consideration certain conditions. As it was pointed out above, any element may occupy either the dominant or the subordinate position, but no sooner is it made the focus than it ought to justify it, first, by position; second, by its approaches; third, by its intrinsic merit in structural combination, in scale and in interior decoration; and fourth, it may and it may not be featured outwardly.

Famous classic examples, as well as Esquié's plan, illustrate this principle. In formal design—in which symmetry is the rule—this is secured by resorting to axes. In such cases the feature is always placed in the center, on the axis of the composition. But this is not all. One must take care to secure in the design gradation of interest, and therefore the very approaches ought to be gradually increasing in architectural effect, thus making out of the feature the climax of the whole composition. Such is the case of the "foyer" in the "Grand Opera" of Paris, one of the many features of this edifice, in which the effect is secured through larger dimensions in every sense; length, width and height. Besides, the structural units of this feature are bigger and are given more scale.

A survey of other good plans would show that at times there is more than one feature accentuated. This is to be expected in some large compositions, such as government buildings, court-houses, some very important official mansions, such as embassies, and many other programs. The

researches made by the student concerning the prominent positions occupied by various plan elements will make him acquainted with many a parliament, actual or proposed, and other important structures, showing him how harmony may be established when the number of features increases in a plan, how confusion is averted. It goes without saying that even in small plans such problems will occasionally be met with, and they may contain more than one feature. Then reason allied with the aesthetic sense will help to solve the difficulty, as many an example will show. In every case convenience and aesthetics must be considered, though one of the factors may dominate. In utilitarian cases it will be the practical consideration that will be emphasized; the more the program rises in its aspirations the more the artistic will prevail; which does not mean that architecture is the something that will be added to the structure to make it look beautiful, but rather that whatever affords a chance for a decorative feature shall be made one.

In Plates XV, XVI, XVII, a few plan elements are shown featured in a semi-complex plan. What is most remarkable about the plans of famous structures of the past is the liberal way in which surface, air, and natural light are distributed.

Admirable as are the discoveries of science, they ought not to take the place of natural ventilation and lighting. A sunbeam contains much joy, especially when it comes through a window enabling one to enjoy a casual glance at the sky or at the landscape.

How magnificent from this standpoint is the Palazzo Reale of Caserta.* Especially is its central cupola to be admired, for it was the purpose of the artist to admit light at the meeting point of two wings. The solution in the plan is a most elegant one.

*And for that matter, most of the royal palaces.

CHAPTER IV

SEMI-COMPLEX DESIGN

GOING carefully over some of the semi-complex types of compositions referred to in the preceding chapter will prove greatly beneficial in showing that a program to be properly solved must first be properly considered in its main characteristics, to the end that it may be practically summed up in its title. For instance, a school. It may be a very complex one containing many elements. But above all it must be borne in mind that it is to be *a school* and one must first be penetrated by the very spirit of the program and see that the classrooms, with their definite requisites of space, air, and light are the essential part and all the rest, though indispensable, occupies a secondary place. From the one-room school to that of fifty rooms the principle is the same, and we must give all our attention to the classrooms, for each one may be considered as a school in itself. Where the program includes an assembly hall, which is practically a classroom planned as far as possible for all the pupils, it goes without saying that it constitutes such a feature as well may be emphasized outwardly, which is not infrequently done. Or turning toward another program: the railroad station. What is the main characteristic of such a program, one which shall guide all our thinking while reading the data of any particular station? It is—to put it in its simplest form—a place in which, after purchasing a ticket for a certain destination, we wait with a grip till we can board a train that is to take us to our destination. It is mainly a waiting room and a concourse, and the other items, while indispensable, occupy a comparatively small place—ticket windows, baggage registering, etc., are secondary, though very important. The waiting rooms and the concourse, these are the program. Once this is well borne in mind the student may read the particular program and look for the most reasonable way of solving the problem. A solution is said to be the best when it is suited to the program in question and to no other. This is the architect's part.

To reach this stage in designing we must proceed step by step. The proper analysis of some such programs and their best existing or proposed solutions will point the way to the handling of our own difficulties in an artistic manner.

In writing the chapter on "Incorporated Features," it was mainly this that was borne in mind, because the feature, when properly understood, is that part which sums up the program. For instance, man's first abode was a tent. This developed through centuries of civilization into the living hall. The rest, while important, ranked second. The Palladian Villa at Vicenza embodies this idea very well, with its central hall and all the accessories surrounding it. So does the pavilion (plan) of Marly-Le-Roi.

Again turning to another field, a library is a place in which one may find a reading-room and books to read. Hence the character of even a most elaborate program may thus be summed up: a place to read in. The Library of Congress, beautifully fulfilling this definition, has the reading-room in the center, and all the subservient parts radiating from it. Of course this program is made a special one, with its museum and bureau of copyrights; nevertheless, it is a library first. It does not follow that all libraries ought to adopt this plan, but in the main the principle of easy access to the reading-room, which ought to be the feature, ought to be the guiding consideration to the student; and naturally abundant light should be provided, etc. Then the reading-room will assume one of the many geometric forms we have seen, or a combination of them, according to the ground, surroundings and appropriations, and here is where the study of plan elements as suggested in the preceding chapters finds its immediate application. Though in the detail there may be considerable difference between the one-element plan and the feature it inspires, yet as a whole they may be very much the same. The difference will help secure the respective individualities.

What is most important in the study of existing or proposed solutions for semi-complex buildings is to see how the feature and the accessories are bound together harmoniously, the gradation in architectural effect, the suitable proportions and the degree of contrast in each case. In the best examples the various parts are so composed, so architecturally bound to one

another as to impress one with unity. Otherwise they are liable to look, to say the least, strange to one another.

The Drapers' Hall and tower at Bruges, Belgium, is a good example of a semi-complex structure in which the feature effect is greatly increased by its contrasting adjunct. The impression of oneness is obvious.

Any semi-complex example we come across will point to the importance of simplicity in design. Sometimes the feature occupies the center and the other elements seem to radiate from it, as the various chapels from the central nave in the church Sta. Maria della Salute at Venice, or in the Palladian Villa at Vicenza. This radial method of designing finds many applications not only in small semi-complex compositions, but also in very large ones (especially some reformatories—or in some exhibitions), but most generally the various elements of a program are put together either in a simple or a double row, straight or surrounding a court, the feature occupying the most prominent point in any one of those designs: the center of the row, of the inner court, or of the main front of the whole design. Sometimes the court itself is converted up to a certain height into a very important feature, as, for instance, the main public room of a banking establishment; and sometimes essentials and subservients are written in the form of an H in plan, the vertical parts of the symbol being the essentials and the center the service, or in the shape of a U, which is about the same, only in the latter an open court is more decidedly admitted. In others the general arrangement affects the shape of an inverted T, and this is a very typical shape, applied sometimes to very large programs, the vertical part of the shape being used either for central services or for the feature: chapel, assembly hall, theater, etc. Here quite often the very meeting part of the two branches of the plan is made a feature to enliven the exterior and give it proper character. What kind of feature will this be? Will it have any relation to any of those we have seen in the single-element plans? Quite frequently the only differentiating will consist in making this central part project somewhat, so as to attract attention by a shadow, its architectural treatment being hardly changed from the rest. However, this cannot be properly called a featuring, but an accentuation of the main access to the premises. Accentuations may vary

as to details, but the principle of attracting attention by a break in the plan is liberally used.

When in addition to the break in the plan of some important plan element more expressive combinations are put into play, then that element of the composition is really featured. The truer the featuring the more striking it will appear. (Imposing entrances to the cathedrals, vestibules, Louvre, Paris, ancient and modern.)

I have referred above to the H and T forms of plan. I could mention the I and L forms as well. (In practice one may have to use any irregular form of plan imposed by the shape of the ground.) I may also just mention their infinite combinations. But the first ones mentioned are most used in elementary, semi-complex, and also in the complex compositions. In many of the latter, quite often, the various component parts appear as having a small program of their own, with great autonomy, so to say, only discreetly connected to the main center. Hence it is quite natural to see in compositions such as big hospitals, sanatoriums, artists' colonies, or a big exposition, etc., those simple shapes appear, plain or in combination.

Our research for incorporated features made us acquainted with various systems of compositions, among them being the radial. We have already seen the church of Santa Maria della Salute in Venice, in which the various chapels radiate from the central dome, the Library of Congress, etc. On a different order, only obeying about the same principle, we see the radial system applied on the New York Custom House, in which the huge Public Hall is connected on four sides with the other parts of the building; it is another case of the court being used to a certain height to locate a main feature. In many other cases it is the central court itself that serves as center of radiation (especially in Southern climates, for the sake of convenience). I have referred above to the difference between a real feature and a mere accentuation of an important part of a plan, to attract attention. Such is the case with many an end pavilion, in which the plan does not require—logically—anything special. Only the laws of aesthetics require at times that the end of a long structure should be properly accentuated so that the composition appear as thoroughly finished and not as a mere fragment.

There is no definite rule for featuring a part of a plan, each program requiring the fulfilment of some very special conditions. Thus, while we have seen that the Library of Congress at Washington has the reading-room in the very center, in other cases that room may be located at the front, leaving the rest to the dependencies. The choice depends not only on the artist's temperament, but also on the program, the shape of the ground, and many other factors. The staircase of the main Civil Court-house of Paris.

"Le Tribunal de Commerce"* was featured outwardly by means of a dome in order to offer a beautiful Vista from the Southern direction of the Boulevard Sebastopol, one of the main arteries of Paris. In this case pure logic might condemn what love of the beautiful surely upholds.

In many cases it is not the most useful part that is accentuated, but the one into which the public is, as it were, ushered into the premises.

*Of Paris.

CHAPTER V

COMPLEX COMPOSITIONS

OUR search for incorporated features led us indirectly to the study of the principles of semi-complex design. The same process pushed one step forward takes us into the realm of advanced composition. Here design becomes more complex and it is all the more important to use clear reasoning while studying some famous examples of the kind, in order to be able to analyze the qualities of a big plan, to determine its character, and to find the underlying principle of its layout.

As a composition grows in importance it is likely to have—except in the tower-like plan—a new plan element, i. e., the court, especially when the program implies a number of various departments, each one with its subdivisions. It matters little whether it be a factory or a national museum of art. It is the same principle but differently applied. The court, too, may, like the other elements previously referred to, assume any shape, and also become a feature among other courts. Such is the case with many mansions and palaces, especially of the XVII and XVIII centuries. In the latter the entrance court, called also court of honor, is flanked on both sides with the stables and kitchen courts, their respective architectural treatment being what it ought to be; i. e., harmonious.

Great extant compositions with the court-unit as a characteristic are numerous: the Invalides in Paris, the Palace of Versailles, the Escurial at Madrid, the Vatican, not to mention such palaces as Caserta near Naples, and others. Here, as in the case of simple plan elements, the same considerations of easy access to the various courts, clearness, proportions and artistic order, have their importance. Many edifices of modern Rome offer examples worthy of the student's analytic efforts.

A composition of magnitude does not necessarily imply an undue increase in the number of features. In analyzing good examples, the student will see that the differentiation existing in most cases between the various parts, dominant and subservient, proves sufficient, and the featur-

ing itself, if there be need for any, is left to that part of the composition which best represents the whole. Multiplicity of features leads to confusion, especially if too different from one another, and in the long run the composition would give the impression of a conglomeration of designs having each its own independent character, as buildings between party walls along a street which have little in common except, perhaps, an average height.

A natural inference from the study of good examples of semi-complex and complex designs is that truly the architect's foremost problem is not that of creating new forms. He has a rich legacy left him by the efforts of preceding generations, and which is ready for use with the help of imagination and common sense. The designer's part consists mainly of composing, i. e., of *putting together,* various elements he is acquainted with, and required by the program, according to the laws of common sense, the art of building, and the principle of harmony. Some books on planning by Palladio, of the Renaissance period, Perusi, etc., are still consulted with interest by modern architects. Today the details vary, but the principles remain the same.

Among other important publications to consult with regard to complex planning, including several courts and with varied shapes, the works of Piranesi and of Canina on ancient Rome will prove interesting.*

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*If one were to write an essay on "courts" he would have a fine field for the imagination to play on, going from the squalid prison court of the Middle Ages to the most charming one, that in the Villa "Di Pappa Julio," near Rome, so beautifully reproduced by Percier and Fontaine in their splendid engravings. If now we turn to Piranesi's imaginary prisons, with their weird appearance, again what a change! So we may see that there are as many expressions in courts as there are feelings in the human soul. Much of the secret of it all lies in the quality of the rhythm used and in the variety of contrasts. The court in a large composition, or the hall in a small one, play about as important a part. It is only a matter of scale. The study of such elements is always fascinating, and extant examples abound in all books on architecture. The famous "Place des Vosges" of Paris is nothing but a huge court planted with trees and adorned with magnificent fountains. Many a "hotel" of the XVII century still offers to the lover of architecture a display of fine art, both for admiration and inspiration.

CHAPTER VI

UNITS

AMONG other things differentiating one building from another and which help greatly to suggest the idea of rhythm, is the variety of units: small, big, or both combined in various manners and proportions. A great variety of ordonnances, is thus made possible.* Each one of these ought to be conceived with a view to satisfying the architectural as well as the structural need of the particular case.

As we look upon the splendor of the Parthenon, the Basilica of Vicenza, the Municipio of Brescia, the Baptistries of Florence and Pisa, and the modern masterpieces, we note that as far as detail is concerned it consists in the main of the skillful use of ordonnances: †colonnades, arcades, fenestrations, or of their various combinations. It is therefore very important to make a general though rapid survey of the field of architectural ordonnance *units,* and try to derive a few principles which we may freely use in our own designs.

To begin with, it is not irrelevant to note the striking difference of expression between the vertical line denoting *action,* the horizontal line, *rest,* and the curve, *graceful transition between both.* This at once opens the happy horizon of a great number of possibilities, so that we may face a number of greatly varying problems and not be tempted to use continuously the same architectural ordonnances, except in their spirit, being directed in our quest for more individuality by the principle embodied in the foregoing statement, and that is: The dominance of either the vertical or the horizontal, the straight line or the curve, or the combination of both. It is very interesting to note the impressive effect of a building in which the horizontal line dominates. If, as many authors have it, a feeling

*These find their counterpart in poetic meter: one long and one short, two short and one long, etc.

†Each ordonnance consists of the repetition of a certain kind of unit.

of rest and of security is a prerequisite of good architecture, certainly the long and powerful cornices of the Palazzi Strozzi, Farnesi, or Pitti, do achieve this. The horizontal suggests calm power and self-possession. On the other hand, the vertical, such as an obelisk, a tower, or a single column, evokes the idea of action (a sentinel for instance). Hence the necessity when in quest of harmony, to establish such contrasts as verticalities and horizontalities for a perfect artistic equilibrium. Thus the long interior elevation of the Louvre is broken up by vertical motives, which are in turn subdivided into various parts by mitigating horizontals: the entablatures corresponding to the various floors. We find the same principle applied to great edifices such as the Capitol at Washington, the Palaces of the Place de la Concorde in Paris, and scores of other public and private buildings.

The above is very important with regard to the question of rhythm in architecture. The idea of units does not necessarily have to be associated only with elaborate ordonnances. They may consist of a mere repetition of plain windows and piers as well as of far more elaborate elements, such as we see in the famous Palladian motive. There are a number of different units which were invented either by a stroke of genius or largely dictated by structural necessity.‡ In examples of monumental architecture, the simplest of them consist of colonnades, arcades of varying proportions and also of their combinations. For instance, a unit may be composed of a mere pier and lintel—such as we often use in industrial structures—and it may also offer a far more complex combination of pier and columns with either lintels or arches, the like of which find an appropriate place where strong architectural accents are expected.

Therefore it is advisable for the student to consider first such structures as have only one kind of unit, whether it be monumental or just

‡Suppose we have to erect an edifice expected to stand for ages. It would not do to lay its foundations on the moving sand, nor even on some fairly hard soil, but rather on the very rock. This may chance to be found very deep below the surface, which entails great exertions and expenditure for each well so sunk. It is natural in such cases for the sake of economy to build these piers as far apart as possible. This, by fostering a grander type of unit, gives rise to a more imposing architecture, as well as to admirable feats of engineering. Economy in this case works on the side of grandeur. In ordinary cases, small or low buildings have their foundations laid on the best subsoil, the piers carrying down the weight are more numerous, and a heavy footing helps give the whole of the foundation more security. Hence the natural birth of small units for rural houses, and larger ones for urban ones.

ordinary, and study them not only from the point of view of detail, but also from that of rhythm in the ordonnance. Let us glance for a moment over the Venetian bridge "Ponte Rialto." The units are very plain, mere arcades erected on two inclines, yet the rhythm of the walking crowds which daily cross it is beautifully emphasized by those arcades. A very striking colonnade is that of the Parthenon, and not less interesting are the archades of the Roman and more especially of the Renaissance architecture.

In plain buildings a single type of unit is used. In others, even though small, two or more kinds of units may be seen, both on account of the program, and also for the sake of aesthetics, which require occasional contrasts and variety. Here it is well to caution the student against too strict formulas regarding these contrasts. For instance, he will notice that in structures where high colonnades are contrasted with low ones, the latter are supposed to be only two-thirds of the former in height. While this proportion is very agreeable and commendable, because it is a very simple ratio, nevertheless it is a little like the Greek profile, which is beautiful but would be monotonous on everybody in identical manner. It is well to vary these proportions, the main point being to establish a clear difference in height between both parts of the composition. Whether it should be two-thirds or three-fourths, more or less, will depend upon the study of the problem and its possibilities. The essential is to obtain harmony, and to this end one is often led to interpret rules, keeping from going to any extreme. Reason and beauty must always be associated.

The study of various units is exceedingly interesting, especially when there is a variety of them in the same composition. In this respect one cannot help referring again to the Paris Opera House, in which the variety of units helps greatly outwardly to express the character of each component part. All this is done very simply, by using in certain parts only the window with hardly any ordonnance of pilasters, as for instance, in the administrative part; and as we begin to see the dependencies of the stage, there is a more marked liveliness and interest in the units. Gradually we approach the public side entrances, and here the units are by far more monumental. Now making our way toward the front, the units become as

rich as would in music the approach of a beautiful climax, and end in the front by one of the most gorgeous types of ordonnances, allying power to grace, and richness to simplicity. Interesting ordonnances do not necessarily depend for effectiveness on costly materials—plain brick, brick and stone, or even wood, in fact, any material may do. We see brick and stone very successfully applied to Louis XIII masterpieces of architecture. With such a variety of materials and their combinations we can see at once what a vast and fertile field we have at our disposal when in quest of variety of architectural effect. Thus the arcade ordonnance of a big railroad station, Plate XXXI, will show very durable material, plainly treated, but with grandeur, in keeping with the very idea for which such a structure stands nowadays, not only as the proper place for accommodating crowds of travelers, but also as the modern city gates. At other times arches of much lighter and more graceful proportions (Plate XXXII), in more or less rich material, will be found proper for a shelter in a park or for a small art gallery. In other instances one may resort to iron units in the shape of either colonnade or arcade, for either utilitarian or artistic purposes.

Summing up the advantages of the study of architectural units we may say that it proves particularly helpful in the quest for proper expression and individuality, in the variety of simple programs. But it is even more invaluable in cases of complex programs for then it enables one to differentiate the various parts—otherwise perfectly united—according to their proper destination and their relationship to the whole. In this way the special featuring is reduced to rare cases, for when an important component part of a plan is differentiated by its units, it thus manifests clearly its relative importance.

Featuring will be found necessary sometimes when the whole must be plain, in order to relieve its appearance from too stern a monotony. However, examples abound in which this monotony is desired in order to express certain ideas—such as perfect peace, prevailing in so many temples and also in some libraries, museums, etc. Many examples offer in their units the rhythmic alternation of elaboration and simplicity which is quite a relief to the eye. The Spanish artists sometimes pushed these contrasts

to their limit. Occasionally such contrasts are also met with in the French Renaissance.

Thus equipped with understanding of the units we are ready to undertake the study of Rhythm.

CHAPTER VII

RHYTHM

WE find RHYTHM almost everywhere and at any time in nature, not only in the animate creation, but also in the inanimate, in the outlines of mountains and rivers. We find it in the gust of the winter gale, giving birth to ocean billows, as well as in the gentle summer zephyr, softly stirring the boughs of the trees. It is also within ourselves; when moved by a story our heart throbs more swiftly, and when dejected our pulse beats slowly. It is the very part of ourselves which we must pass on to our work, in such a way that it should react on the onlooker even as the musician's play does on his hearers. Our own sense of self-possession will guide us in imparting calm and dignity to our work. It is enough, in order to get a hint of this, to watch a very dignified person: his whole self will bear out the signs of perfect repose engraved on his face. The calm rhythm of his features and all about him tell of his poise. This sort of rhythm is present in all self-possessed men. In the inanimate world we find similar calm rhythm in large rivers, in huge mountains (which recall famous works of sculpture), in the beautiful surf, so majestic, so grand, especially when the sun shines on it, and we see it also on all sorts of clouds. We see it too on animals, such as the lion and lioness, when lying down or squatting, their muscles well relaxed. The proportions and the respective outlines of their different masses are such as to impress one with calm power. Whereas in the same animals we can see the riotous rhythm written on their whole being as soon as they are provoked: their masses vary in their rhythm, their muscles are contracted like a series of strong springs ready to act. The lively or gay rhythm is charmingly illustrated in children's play, and in dances. (For that matter, various rhythms in classic dancing are used to express all sorts of feelings: joy, sadness, enthusiasm, kindness, bellicosity, majesty, etc.)

How is rhythm marked? Any musician will tell you "by periodic recurrence," like a pulsation. The rhythm of a person walking royally,

majestically, is marked by the recurrence of a dignified, self-assured step. The recurrence of the seasons, of day and night, of ebb and tide, mark forcefully the idea of rhythm. What is more gay than the pictorial rhythm marked by the shadows of swiftly flying clouds on a summer day over beautiful meadows or hilly scenery?

Architectural rhythm is expressed by successive solids and voids as in piers and arches, windows and their spacings, projections and recesses in the very plan, which causes a recurrence of shadow and light in elevation. Engaged columns, or even strong pilasters, for that matter, write a rhythm the character of which depends on the special arrangement adopted for their recurrence. The rhythm in the Parthenon is very ceremonious, dignified and religious. It expresses the rhythm of a procession, which is the same in most churches (except such a one as St. Giovanni in Laterano in Rome, in the nave of which the rhythm is not altogether monotonous. The recurrence is not merely one of pier and arch, as in other naves, but of finely sculptured piers and arches, which makes it in this respect by far more interesting even than the varying capitals in the Gothic churches). (See Viollet-le-Duc, Dictionnaire d'Architecture Française, under the heading Chapiteau.)

As we look at the elevation of a structure we find rhythm not only in the recurrence of solid and void, of columns and their intervals, of light and shade, but also even on its very cornice, the straight line alternating at times with pointed or curved pediments. When these pediments recur they form a beautiful rhythm, as can be seen on several remarkable examples of the French châteaux and in Paris. Thus there is the same sort of rhythm in the recurrence of the Gothic gables, although not so restful on account of their sharp angles. The Palladian motive offers a splendid rhythm, alternating big arches with narrow columniation units. This idea, with modifications, has been used by Garnier on the Paris Opera House.* In the Louvre we find an abundant source of inspiration along this line, in both the old and the new parts of the palace.

Another way of accentuating rhythm consists of alternating plainness

*In this way we see how great artists can inspire themselves from one another without strictly copying, which would mean mere plagiarism, a repulsive process.

with decoration, which means giving the eye a chance to admire and rest alternately. The mane on a lion looks the more beautiful because it is contrasted with the smoothness of the body, and also in outline and proportions.

Rhythm may change in a structure: from slow and majestic it may turn to more rapid, increasing in quickness along with the interest of the structure itself. (See base and crowning of St. Peter's dome.) It is particularly visible in the decoration of the Flemish belfries, rapidly increasing from the ground upward.

Bearing in mind the foregoing, while admiring an edifice of some particular character, one cannot refrain from thinking of its peculiar sort of rhythm (as one would note that of the voice in an old, decrepit man, or, on the contrary, of a joyful youth, etc.). To be able to determine this correctly means a great stride onward, for then one has grasped one of the fundamentals of design. Of course rhythm is not all, but it may be said that in itself it is expressive from a distance, when nothing but main masses, lights, and shades, can be seen.

A powerful illustration of architectural rhythm and its variations can be seen on the Orsay railroad station in Paris, in which we see the monumental recurrence of great arches alternating with big piers, and contrasting with these the comparatively rapid succession of piers and windows in the adjoining hotel. One can rarely see more strikingly contrasting rhythms except in cambered stone bridges. Those in Paris offer fine examples of rhythmic power well expressed.

In any well designed public building of importance in which the reception part of the offices are distinctly marked, one can easily detect a striking difference between the units of the two parts: in the former they are large and imposing, while in the latter the units are again in the spirit of the whole department, that is, businesslike, more matter-of-fact. Their recurrence is by far more rapid than in the former, reminding one of the rapid rhythm of the drum in a military march. (Which may have an effect on the subconscious, stimulating the workers' energies as would a commanding eye.)

The student will find a fascinating interest in going over many great works of the past and present times, endeavoring to establish with some

degree of accuracy the nature of the rhythm which often announces the mood. It is worth noting that great monuments as well as simple railroad stations may offer the same grandeur in appearance through majestic proportions and proper rhythm, though the elements may vary from one another as to decorative treatment. The human element is there. In one case one may think of great decorum and in the other of great simplicity, always with sincerity. Human beings are always to be respected. Only the situations vary and at times may require more display of dignity than at others. This holds true especially with regard to public buildings, of whatever class they may be. What belongs to the public belongs to the very great as well as to the lowest. Hence it is necessary that the very best of the community should see their aspirations decently represented in every public structure. It matters little whether it be a theater or a public school.

One must not confuse simplicity with poverty. There is such a simplicity as may prove tremendously overawing, while on the other hand a composition offering many panels with nothing in them, emphasizes poverty in a costly manner. How much grandeur there is in the simplicity ensuing from the frank and broad treatment of structural elements!

CHAPTER VIII

SCALE

THE word SCALE has often proved a baffling one to architectural students. It is in fact one of those words which leave a vague impression on the mind of the beginner unless the instructor insists on making it thoroughly clear by all sorts of comparisons and images. Why is this structure or some of its elements out of Scale, and how can it be made to be in Scale, are questions which the student is often prompted to ask. But what is *scale?* Do we see it in other fields than architecture? The following is an attempt to answer these queries. (See plate XX.)

A building may be said to be in scale with its purpose or its size. Thus a very small theater may be said to be out of scale with the requirements of the community and yet appear even larger than its size—in which case it is said to have very much scale, which is paying its author no mean compliment, if he did it without resorting to trickery. For scale is that quality of an architectural composition which makes the structure really look its size: big, small, or medium. When the Romans built the Pantheon of Rome they intended it to appear very big, fit to be the temple of all the gods worshiped within the Empire. Its general treatment is in scale with the dimensions of the edifice. Another illustration: Notre-Dame, Paris, appears even higher in the interior than it really is. Why? Because the architects resorted to methods which could not but impart this expression to its naves. On the other hand, it has often been reproached to St. Peter's of Rome that it does not give the impression of hugeness one might expect from it. To put it in other terms: It is not enough for a structure to be big, it must look it. For in some cases size also helps to express majesty. The very effort necessary to achieve things of magnitude is in itself worthy of admiration.

We see around us every day things illustrating the idea of scale. A child of a certain age is either taller or shorter than another of different age, while both are normal. All children are supposed to be, in general,

smaller than grown-ups. But not only is the size different in two beings of different ages: their proportions and the character of their features differ, too. In a young child the head is between the fourth and the fifth of the whole body, while in a man it is between the seventh and the eighth. Besides, the child's head is shaped almost like a ball, its cheeks are fairly round, especially when the subject is very healthy, and its body and limbs offer similar characteristics. Let us now consider either an athlete, a laborer, or a clerk. How different is their appearance. We have already said something about their proportions. How about the features? It seems altogether out of comparison. Here we see signs of thinking, of concentration, a set jaw, shaggy brows, powerful nose, determined chin, a deep frown, and more or fewer wrinkles. The hands are sinewy or callous according to the profession. The veins and arteries are strongly marked. Let the sculptor carve a human being on a colossal scale. If the proportions are those of a child, in spite of the size it will convey to the mind the idea of a giant child, never that of a man.

Another example: A young tree has just a few limbs and each has a few leaves. As the whole grows, the number of branches grow, and the thickness of the trunk, too; the leaves will be more numerous but they will remain the same size. The masses of leaves, of branches, the thickness of the trunk, all of them will impart to the whole its scale.

If from the tree we turn to the church nave, we will find it natural that while its height increases, that of the stone courses remains the same. Likewise we also expect to see on the shafts of the columns the same signs of greatness that one may notice in the trunks of very large trees; that is, if one would make a section through the trunk (not of all trees but of a great many), he would find it composed, as it were, of several trunks attached to a central one, each one of these protruding trunks supporting directly certain important limbs of the tree. The same principle applies to the shaft in a Gothic nave. Viollet-le-Duc, in his famous dictionary, in his article on scale, refers to the subdivision of a very huge shaft into its component parts, each part properly accentuated as having to receive directly a part of the big load which is to be supported. This reasoning shows how structural considerations lead to perfect expression

and to individuality. Yet, the analogy between these beautiful results and nature's teachings is worth noticing.

Just as a reminder, I shall mention here a fact that is to be found in any treatise on design, and that is, that those elements which are related to human beings should always be of the same size, no matter whether the structure is conceived on a monumental scale, like the Parthenon, or on the ordinary scale. Thus the height of steps and of balustrades, the minimum width and height of doors, etc., should always be the same.

Furthermore, quite often the student is told that such ornaments of his design do not suit the size of a given panel, that is, they are either too big or too small. To have him understand the reason for the remark, I may say this: Given a certain point from which the structure may be enjoyed on the whole, in its interior or its exterior; from that point everything should seem to have a harmonious relation to the parts and the whole. If perchance a certain detail, ornamental or architectural, has been unduly enlarged, it will then appear as glaring and will mar the general effect. On the other hand, if details or parts have been unduly reduced, the natural result will be a sort of strain to the eye (unless this should have been made on purpose and brought on gradually). Any surface requires subjects of ornamentation in proportion to its size, so that from a distance everything should be in keeping.

Sometimes we see huge sculptural pieces adorn either the outside or the inside of buildings. How should this be interpreted in terms of scale? Here the answer might be that if the piece of sculpture occupies a prominent position and symbolizes either a deity—as the Jupter in the Greek Temple—or a national hero or allegoric inspiration, then its hugeness is in a great measure justified, because the size is commensurate with the idea conveyed by the piece of sculpture (and often with the distance from which it will be most frequently admired). An instance in point is to be seen in the allegoric figures standing at the base of the Triumphal Arch in Paris, one of them representing the Marseillaise, the other the crowning of Napoleon by Victory. These colossal groups stand as symbols of the aspirations of a whole nation.

I have mentioned before the Pantheon of Rome as being in scale with

its hugeness and also with the majesty of its dimensions. It is interesting to note that most of the architectural effects, from the point of view of decoration and scale, are derived from the accentuation of purely structural elements, such as the coffers of the spherical vault.

To refer again to nature: Considering once more the tree, we find that even when old trees do not offer the sectional subdivision above referred to, there are other signs which mark the tree's age. For instance, the nature of the bark: in a young tree it is usually smooth; as it grows older it grows rugged (though not in all trees). This ruggedness increases with age to the point of offering some odd design constituted by a sort of network, the meshes of which become more sculptural and more intricate with the growth of the tree.

As a natural inference from the above, not only a full-fledged architect, but also a connoisseur layman, may justly require that an arch meant to be huge should offer some unequivocal signs of it, not only in the dimensions of cut stones, which we find even on monumental bridges to be about the same size as those used in everyday public buildings, but also in the architectural treatment. For instance, the archi-volts of a huge arch should be conceived in a way to impart the idea of greatness, of extent, either by multiplying the elements or by a design proper to suggest the true size. The principle should find as varied an application in architecture as in nature.

The early Renaissance period offers some beautiful types of columns with shafts adorned in a manner recalling the network on the tree bark. The author of the Palazzo dei Doggi in Venice had a very fine idea of scale when he gave to the very stout columns in the porticoes at the base of the structure such proportions to the capitals as to make one understand at once they were intended to impress the onlooker as if each shaft were the combination of many.

CHAPTER IX

EXPRESSION

THE architect is expected particularly to distinguish himself from the mere tradesman, mason, carpenter, or the like, when it comes to making a building express its destination, not by huge signs, but by the very structural elements artistically handled. It has taken mankind many a generation to reach this point of development in our art, and it requires special training to use it properly.

Architectural expression is not exactly the same as in other arts. No passion or strenuous action is expressed in it, but many qualities of the citizens of a community can be interpreted in brick and stone. A cultured observer will read with ease on a public building, and, for that matter, on a private one, many a trait of the general trend of mind of the locality, of the individual, or of the architect. Such traits as majesty, dignity, culture, appropriateness, delicacy of taste, urbanity or rusticity, can be written on any structure and read, with but little previous training, by any layman. Thus one is awed on seeing the Palazzo della Signoria, or the Palazzo Pitti, or any of those Florentine structures, many of which tell the intention of their builders to have them stand forever, because so much strength is there represented. In the same structures there is a great deal of severity and sincerity expressed. Very few ornaments are lavished on those walls meant to serve first and foremost for protecting the inmates against any possible aggression from without. Each rock-hewn stone gives the impression of a tense muscle ready to act.

In some edifices, we are charmed, as, for instance, before the main entrance of the Napoleon Library at Strasbourg, built in the Louis XV period (named at random just because of the very excellent impression it produced on the author). It is made graceful not only by the very attractive pieces of sculpture which adorn it, but by the general architectural treatment. On the other hand, we feel oppressed before such edifices as some old frowning château.

Expression is a great asset in design, as it imparts individuality to the various creations. Nature has proved the great source of inspiration for variety in expression.

There are at least three main characters that can be written in architecture. They are the stern, the graceful, and the solemn. The three orders: Doric, Ionic and Corinthian, seem to answer in some measure to these three expressions. While it is undeniable that when properly used the orders may greatly help to produce certain desired effects, yet a structure may impress one with the same feelings without necessarily using any specific order. Proper rhythm, proper units with the right amount of variety, combination of straight and curved lines and masses, according to the program—all this has its great importance in the quest for expression. Each program must have its positive elements of expression as against the negative ones often resorted to by beginners who attempt to impart character to their work by eliminating from it some elements to be found in certain types of structures taken as a criterion. Thus if the program in question is a Masonic temple they argue that the suppressing of windows or some other feature, usually expected on a regular temple, will be sufficient to give it its proper character. But, as it was said before, these are negative qualities. The positive ones are such qualities as strength, unity, refinement, sincerity, harmony, etc., which the architect shall accentuate through right proportions, proper use of materials, etc. To emphasize even more this requisite of expression let us examine a masterpiece of sculpture, for instance, the Fighting Gladiator. Would it be sufficient in order to establish the difference in character from that of the statue of a dancer, to say that the latter is joyful and smiling while the former shows neither of these traits? The statement, while perfectly correct, offers a negative argument, and we must look for specific traits in the gladiator's dash, in his tense muscles from tip to toe, the attitude of each limb, and, last but not least, the expression of his face, aggressive and determined. To come back to architecture, taking away the volutes—the graceful, the smiling part—of the Ionic, would leave the capital with no expression; but substituting for it the powerful Greek Doric will impart to the column the well-known expression of sternness, gravity and simplicity.

Many of the qualities of a building are expressed on its very plan. Strictly utilitarian edifices will show the tendency to be very compact and leading to the tower-like structure, while more aspiring ones will probably use courts, differentiating the main one from the subordinate. Buildings destined for festivities may have, incorporated in their plans, some curves, either in the guise of a special festivity hall or in some curved portico. This is to be also expected somewhat in exhibition buildings. Besides, in festival buildings the rhythm may be more forcefully marked than in the administrative ones, through more numerous features and more rapid succession (never forgetting the sense of measure).

As said before, the power of expression will be acquired by serious practice in the interpretation of the great works of architecture along the lines of great masters such as Piranesi, Percier and Letarouilly. Special stress is here laid upon the fact that expression does not necessarily require extent. It is this thought that led to the making of the Plates from XXI to XXVI. On pracically the same square were imagined various programs, and the proper expression was looked after, always bearing in mind such factors as *rhythm, units, program,* etc. (Opposite each plate the student will find a few words of explanation.) Some of these small structures give the impression of sternness, though no Doric order be used. Since the orders are only an affirmation of the principle on isolated piers and also a way to emphasize the effect on some occasions, the more sparingly they are applied the more effective they will appear.

Likewise in other small structures: In the exposition kiosque, though there be no Ionic order there is to be seen some grace and playfulness that somewhat recalls that order; while in the small guardhouse the martial rhythm of the military drum is fairly well recalled by the rustications and battlements.

It is for the student to hunt in the many classic books for such well-known small structures, real gems, poems in stone, as one might say, and endeavor to interpret them as soon as possible from memory; and after some practice he will come to a better appreciation of them and find himself on the road to expressive design.

CHAPTER X

HARMONY

ARCHITECTURAL harmony is the result of co-operation of the different factors of a structure toward one purpose and effect. The student unwittingly encounters it without noticing it; for its absence is more noticeable. The laws of harmony require that the appearance of a structure should be in keeping with its destination. There is no *reason* why the residence of a peaceful citizen should look like an ancient dungeon or a guardhouse; a school like a factory; a court-house like a jail; or a bank like a temple of old. When the general principle has been complied with on the masses, then it is time to pay close attention to details, with the same end in view. With this in mind it will be found that it is not enough in a railroad station, for instance, to have sufficient room for travelers to sit and to move about, but it is also essential that the importance of the community, to which it serves as city gates, be duly asserted. Hence a metropolis will have one or several stations, each one monumental in character, while a small town will require one, in keeping with its size, several departments often being merged. This is perfectly rational, and it does not prevent the small station from being charming. Simplicity ought to reign in it; but that simplicity should not be identified with dinginess or poverty. The beauty of the station, and for that matter of any other edifice, should be characteristic of its destination and not borrowed from either commercial, residential, or any other class of building but its own.

Furthermore, where the program implies a complexity of elements, no part should be so differentiated from the adjacent one or from the essential as to seem strange to it. In a harmonious composition of magnitude, difference in treatment of the essential and the subservient is to be expected, each part telling outwardly its relationship to the whole; but there must always be some lines common to both, a common base for

instance, to say the least. As to general treatment, it is easy to obtain striking differences between the "major" and the "minor" parts. Where the general treatment is very plain the various degrees of importance will be shown through differences in height and through the proportions of their respective units.

It is unharmonious, shocking, I should say, to see public buildings with a certain ordonnance on the main front, which ordonnance is abruptly stopped as it reaches the sides. This has hardly the merit of even a veneer. On many occasions striking contrasts are naturally expected, but then self-respect commands to avoid the clashing of styles or the hurling of masses of different expression against one another. Who would conceive in sculpture, for instance, a fighter with perfect, quiet lower limbs, while the upper ones appear bellicose? A true fighter has all muscles tense, in readiness from tip to toe.

Whatever is rustic should appear so, and not urban. There are of course many exceptions. These only confirm the rule. In an international exposition one expects along the same line different types of architecture. This is not unharmonious. On the contrary, it answers perfectly the object of giving participating nations full freedom of self-expression.

CHAPTER XI

CONCLUSION

WE started this book with going over the famous compositions of Esquié (Plates I to IV), and throughout we have seemingly neglected it in our quest of such items as units, rhythm, expression, harmony, etc. It is time now to revert to the same composition and see how it stands the various tests of the different principles above referred to. We said in the chapter on expression that even a plan may express the object of a building. There is nothing more interesting than to go over Esquié's plan with this in view. How simple the composition is, though there be so many different items to deal with. Everything is perfectly clear, perfectly orderly. As to the expression of its object through the rhythm of its units, one can see immediately how different are the various units of the main, rear, and side façades, the latter being the smallest of all, as corresponding to the purely utilitarian working departments. The units of the main circulation preceding the general assembly hall are decidedly monumental, especially when compared with those of the lateral circulation, which, as was stated before, seem to suggest a more rapid walk.

The straight line dominates; therefore the mood is rather Doric, that is, stern, severe. Its severity is partly allayed by the beautiful dome crowning the assembly hall.

With regard to scale, let us consider the piers of the main circulation, as compared to the side ones: they give the impression of what they really are, and not of the enlargement of small units. We can see that this plan is conceived for serious purposes, but the inmates are treated to liberal space, light, and air, even the service courts presenting architectural treatment; it must be a public structure representative of a whole self-respecting community. Simplicity reigns throughout, especially in the grand staircase and the successive parts leading to the center of interest of this plan. The whole is permeated with a feeling of majesty, of self-re-

spect, and earnestness of purpose. Contrast these severe lines in plan with those of any festival composition with round porticoes, circular halls, etc. (especially in some of the Roman palaces, such as we see restored by Piranesi) and you will appreciate better their merits.

Gradation of interest is not the least to be noticed on this composition. We note that the units of a certain magnitude on the main façade begin to be skillfully increased as we cross the threshold of the grand stairway. Further yet, as we reach the main circulation, the units—the piers supporting small domes—assume even a more monumental character, and finally the main hall fittingly crowns the series. Harmony reigns throughout. While there are main parts and dependencies, yet there is no disparity. There is a touch of greater richness about the essential. This is as it ought to be if only for the sake of clearness, and to command at once the layman's reverence. (So in a great army the general must be immediately distinguished from the subordinates.) This note is the more effective because a keen sense of appropriateness kept the rest comparatively subdued.

PLATES

PLATE ONE

There is hardly anything to add to what was said about this plan in the text. However it is interesting to note that such a plan by its absolute symmetry suggests for its location a central place—at least as far as the general lines of the plan go, but the elevation somewhat changes this impression.

The hugeness of the auditorium is written by the comparison with the adjoining elements, the number of units in the corridors and the size of the courts. It is well to study this plan and the following Plates before and after having read the whole text.

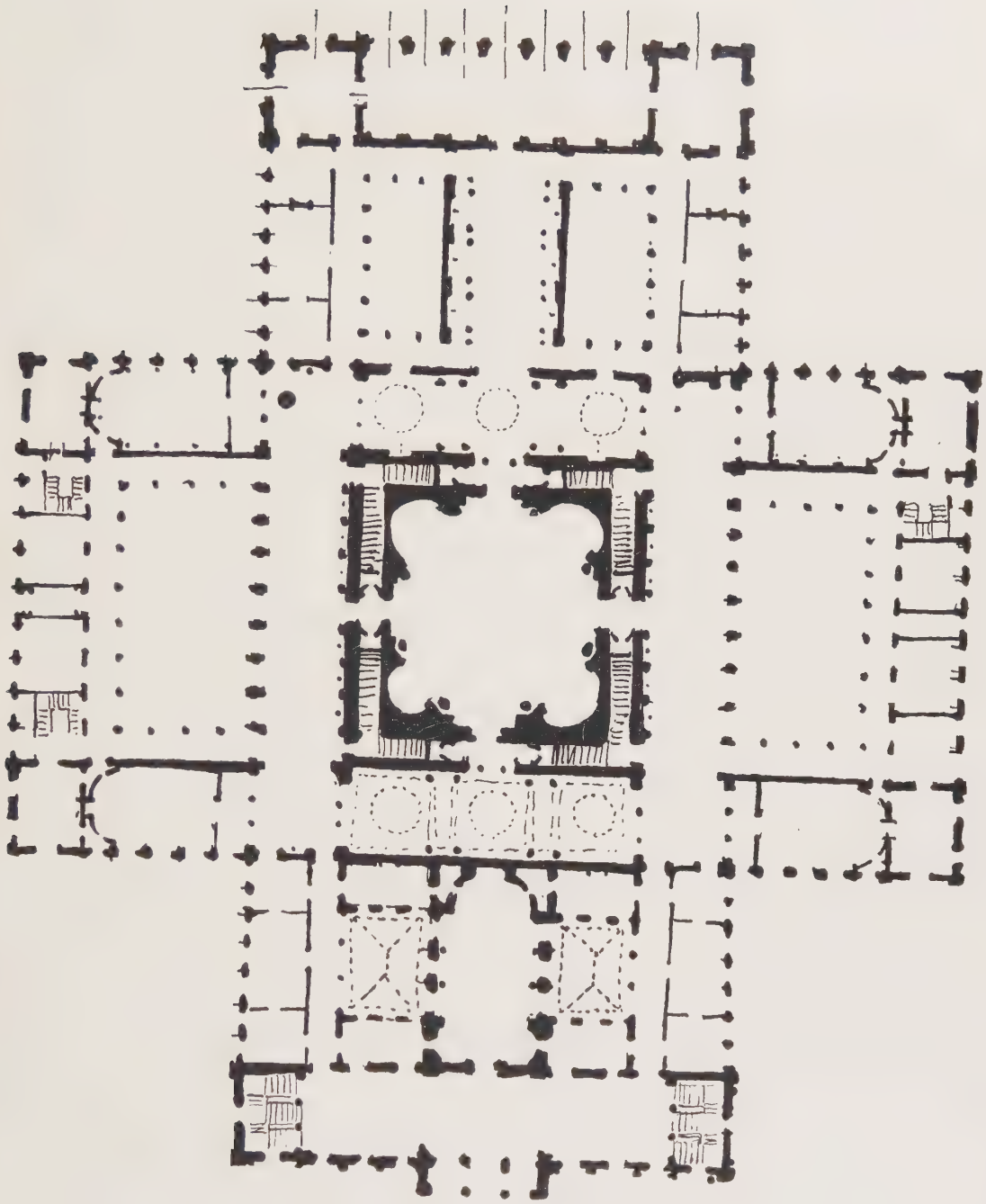


PLATE I

PLATE TWO

Without attracting the attention in a forceful manner on Plate One, one can hardly expect people to notice the existence of very important rooms with particularly imposing shapes fitting the program; because its author saw fit to throw even such important elements in line with subordinate ones, for the sake of convenience and of harmony, leaving the featuring to other more important parts.

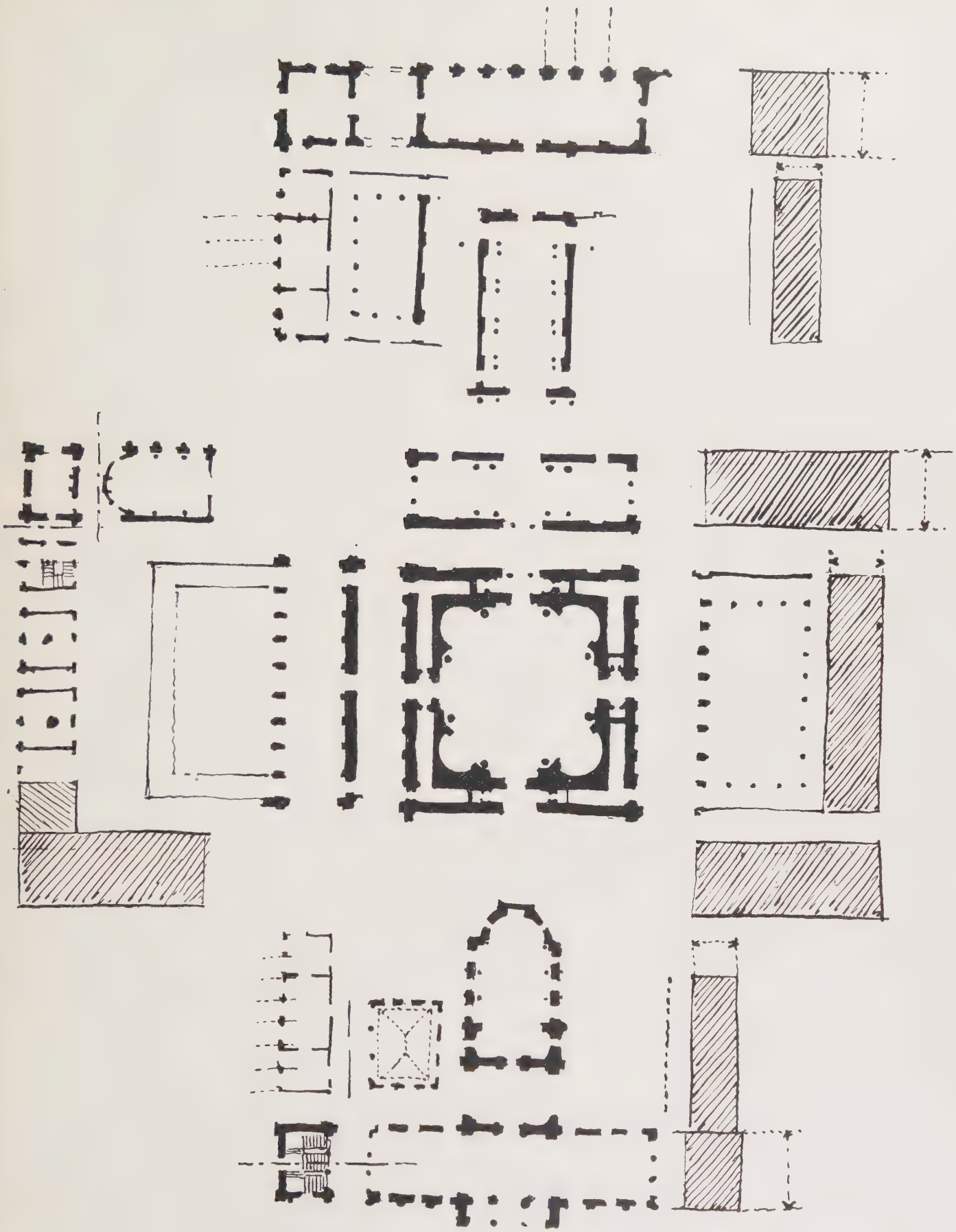
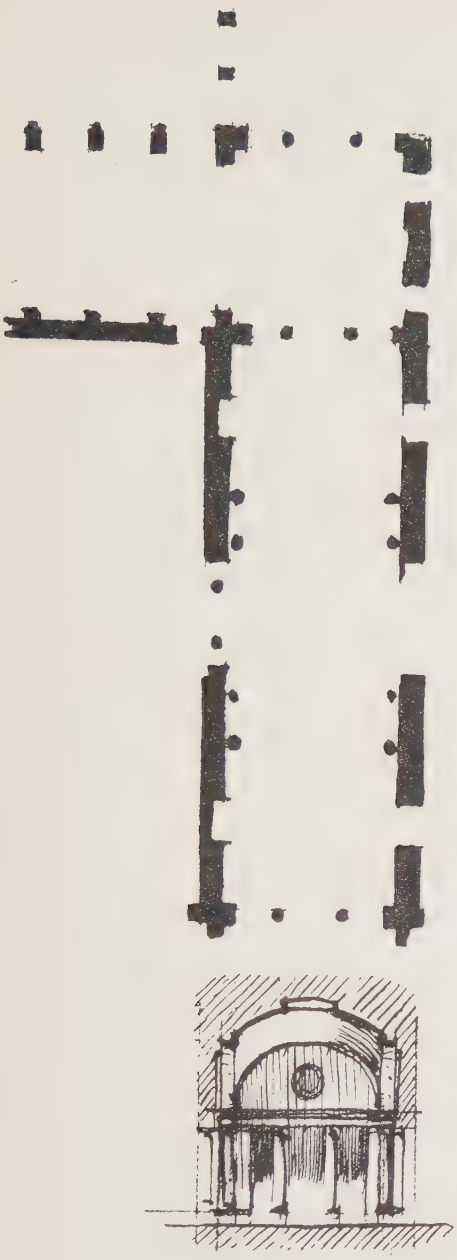


PLATE II

PLATE THREE

These enlargements of the corridors and gallery of the first Plate are shown in a manner suggesting to the student how to look upon things and how to sketch or draw from them. It is to be noted that besides the sections, the perspectives corresponding to these galleries are also given here, for while the technical drawings, plans and sections are very important, yet the general effect is to be judged only in perspective, and one must have reached a very high degree of experience to read the effect of a project upon seeing only the plan. The difference of expression in both is patent, especially concerning their rhythm. It is so much more rapid in the corridor than in the domed gallery.



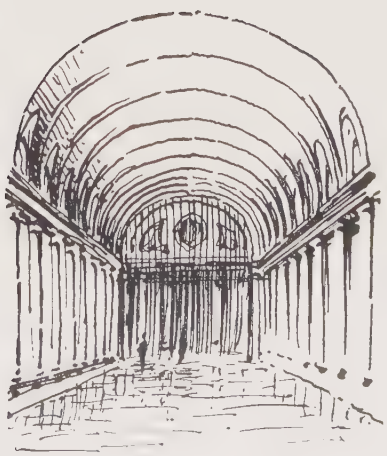


PLATE III

PLATE FOUR

Elevation and section of plan, Plate One. The principles of contrast for harmony's sake, the simplicity of rhythm for expression's sake, the writing of the essential and the subordinate by both mass and detail is here properly shown in both elevation and section.

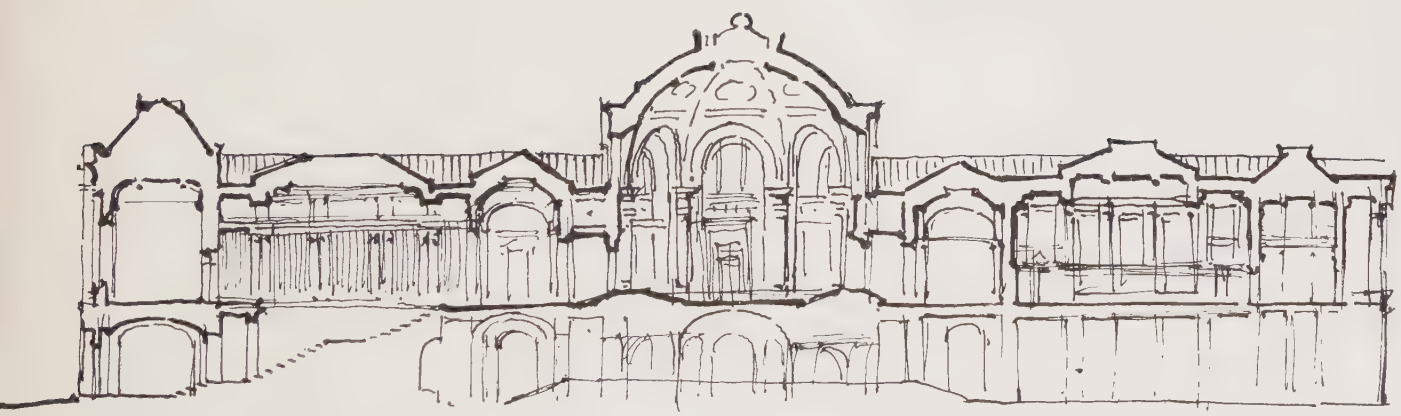


PLATE IV

PLATE FIVE

It is important to bear in mind that while there are examples of elaborate plans for simple structures, it is not necessarily essential for all edifices, as shown in the succeeding plates. It is well to know that oftentimes it is not only the temperament of the artist or the science of the builder that creates alone the apparently complex plan elements; the occasional requisites of a program have a great part in fostering them. It is the merit of both architect and builder to have solved artistically the problems imposed by a particular program.

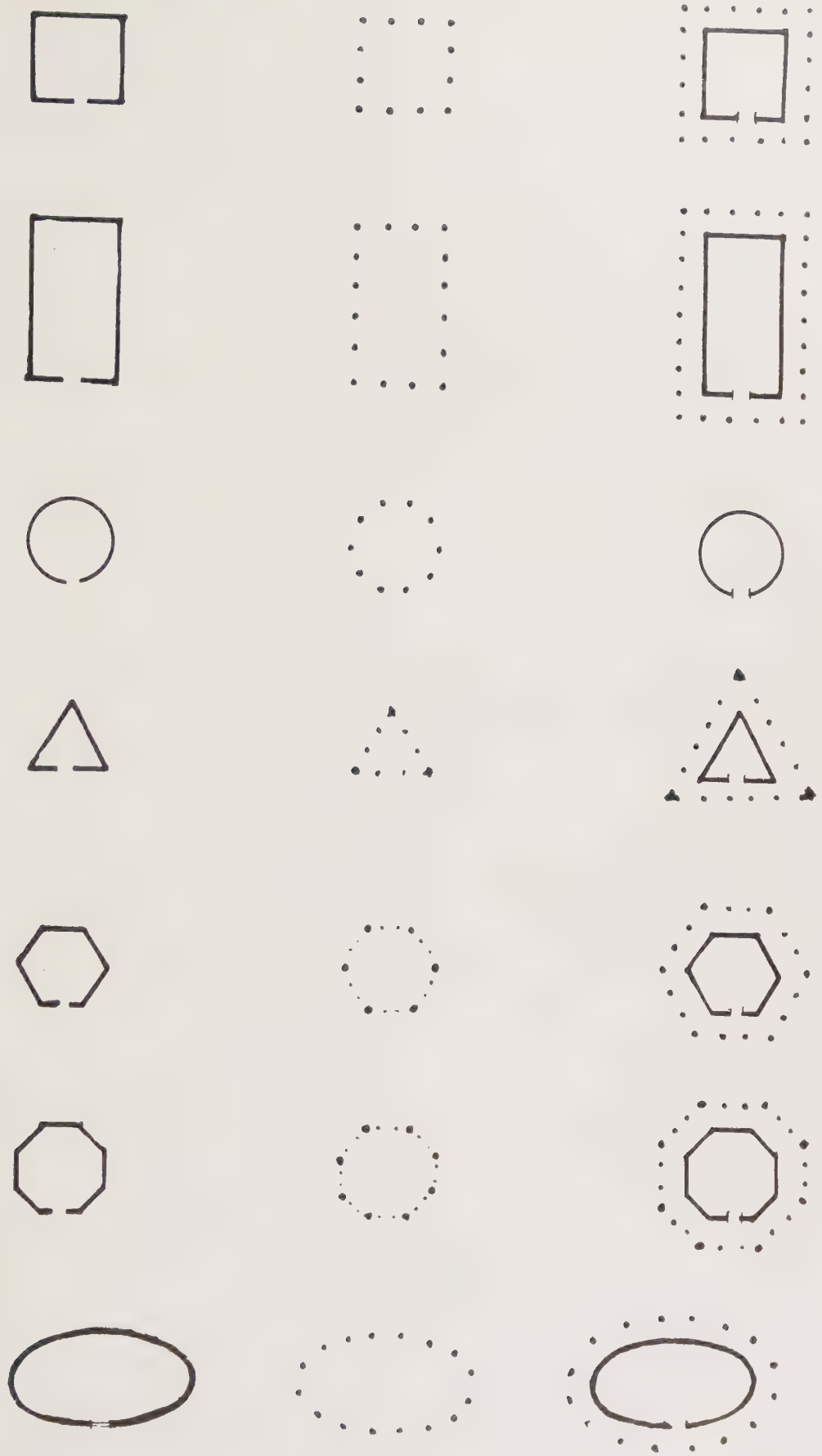


PLATE V

PLATE SIX

Most of these combinations of elements are to be seen in actual structures, one of the most interesting of which is applied to the chapel of the University at Rome (Collegio della Sapienza). (See the illustrations in P. Letarouilly's splendid book.) One of the oddest combinations is surely that of the triangle with three semi-circles as seen in the plan of a small chapel at Planès (Roussilon, France). How interesting from every point of view, both conception and execution. (See Monuments Historiques de France.)

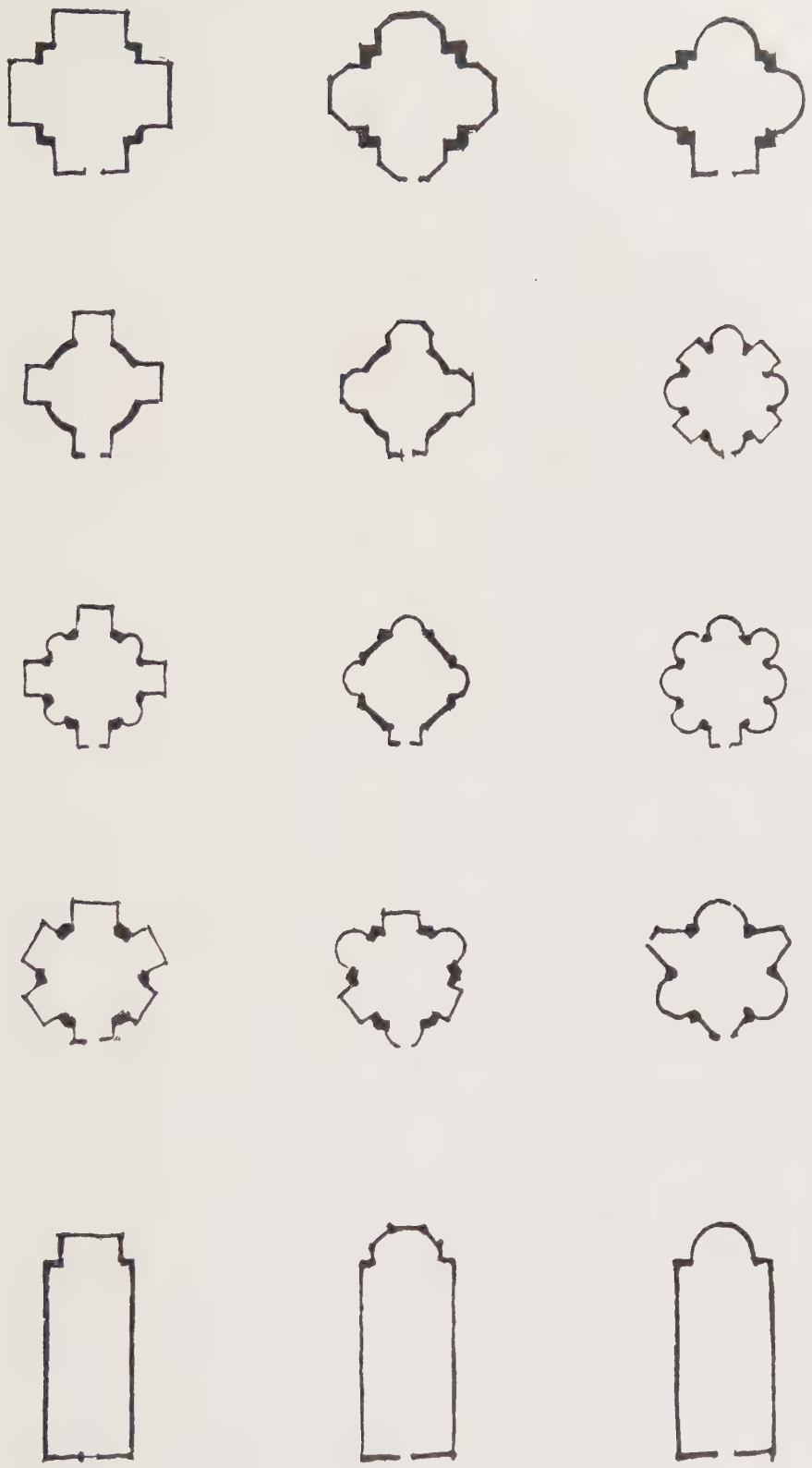


PLATE VI

PLATE SEVEN

In each one of the examples selected to illustrate the application of some of the most interesting forms of plan elements it is well to dwell on the sense of scale shown by their respective authors. In the upper illustration: the Palazzo Barberini, in Rome, where the number of units in the ellipse imparts much scale. It gives an idea of its true size. Likewise in the example below which looks even bigger: the château de Vaux-Le-Vicomte. Here is where one may note the predominance of discipline in composition. (See Chapter III—Incorporated Plan Elements.)

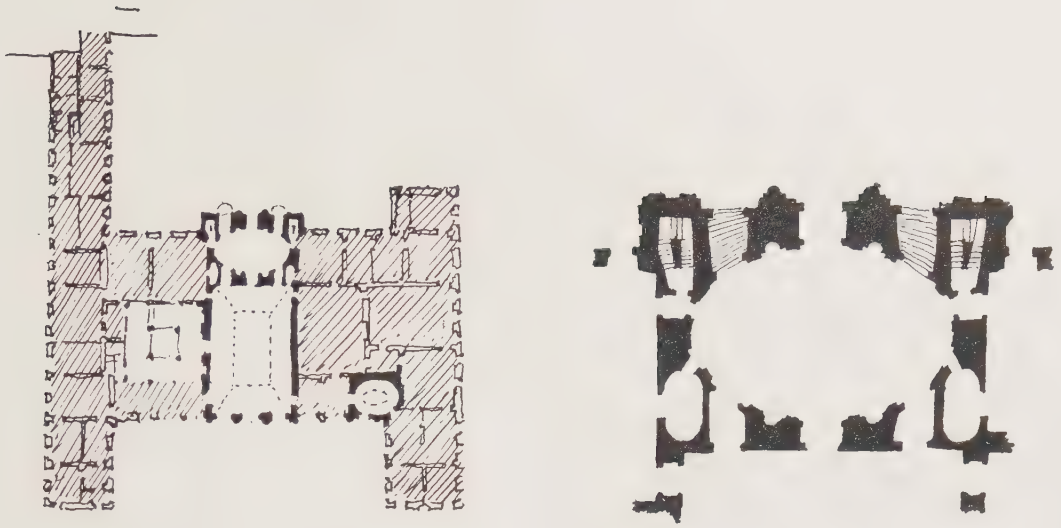


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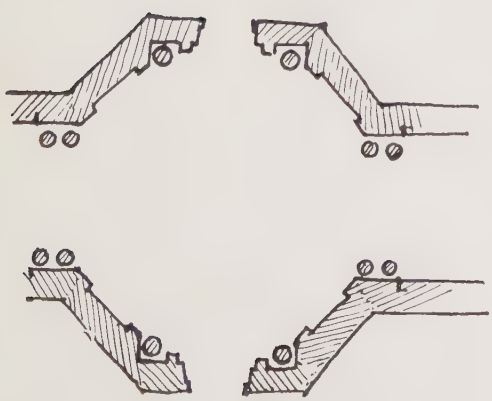
PLATE VII

PLATE EIGHT

As many geometrical forms as are represented on the upper part of the plate, so many are there to be found in the plan of the Museum of the Vatican given lower. It is well to observe the connection between this variety of elements and the increase of interest at the rotunda, the meeting point of two different directions. It is likewise recommended to observe how skillfully the architect solved the difficulty of obtaining symmetry in spite of the peculiar angle formed by the diverging parts of the plan.

Those desirous to see more in detail the whole plan of this famous edifice will find it in "Le Vatican," by P. Letarouilly. Much can be learned from it, especially from the famous court of the "Belvedere," the angles of which are transformed into shrines for famous pieces of sculpture. Here is where architecture observes the law of discipline, of harmony. In the case of these shrines the problem was to create a proper background for those sculptural masterpieces, the architectural elements serving only as accompaniments. Note also on this plan the change of rhythm from certain parts to others which must be more ceremonious and decorative. Note, too, that these changes do not come either too abruptly or too frequently, for confusion would surely have ensued if they had. It is exceedingly interesting to note the gradual growth of interest between the upper long and comparatively narrow galleries (though they are actually of a goodly size) and the rotunda; the octagonal hall has a diameter of mean size between the two; then the gradual falling back to normal size toward the lower part in passing through the cross-shaped hall. What intelligent applications of principles! What keen sense of gradation!



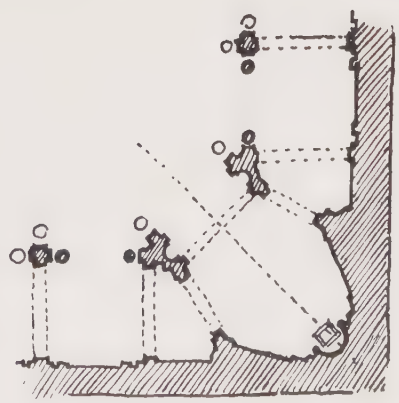


PLATE VIII

PLATE NINE

Each one of the examples here and of the following plates ought to be studied carefully, and if possible, developed in scale, even as Letarouilly did his work. In fact, we could hardly set before us a higher ideal than to vie with this master in accuracy and in neatness of drawing, showing thereby appreciation of refinement wherever it is found. No. 1 is a little chapel (St. Andrea) near Rome (see Letarouilly); No. 2 is a tomb at Agrigente (see D'Espouy's Restoration de l'Architecture Antique); No. 3, memorial (Rouen, France, Monument de la Fierté); No. 4, the Belvedere at Prague (Bohemia); No. 5, the Municipio (town hall) of Brescia, Italy. No. 6, The "Maison Carrée," a small Roman temple, at Nîmes, France; No. 7, the Temple d'Amour (Temple of Love) at Trianon (Versailles, France); No. 8, The Baptistry of Pisa (Italy), and No. 9, The Temple of St. Petro in Montorio, Rome.

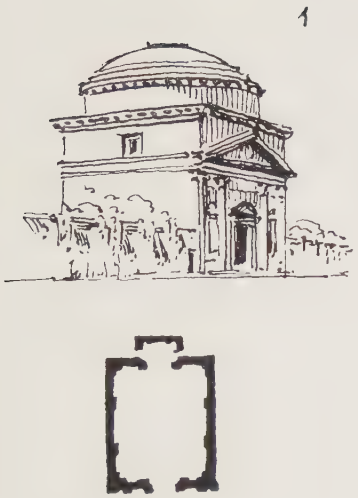


PLATE IX

PLATE TEN

This plate continues the series begun in the preceding one, showing remarkable structures erected on such simple plan elements as the triangle, the square, the hexagon, the octagon and the circle. Fig. No. 1, the Baptistry of Florence; 2, the Salon of Music at Trianon (Versailles, France); 3, a restoration of the Temple of Jupiter at Spalato; 4, the Monument of Lysicrates at Athens; 5, a chapel at St. Avioth, France; 6, a Turkish tomb; 7, a most charming little edifice, serving as fountain, erected on three piers, at Autun, France; 8, the famous Pantheon of Rome, one of the rare extant Roman buildings which can be admired today in their fullness. (Read J. Guadet's famous pages* on the lessons to be derived from the analysis of this structure. See also Chedanne's special work of restoration of this monument); 9, the Fountain of Innocents in Paris, erected in one of the smaller squares of the capital and a most charming composition embodying the sculptural work of the famous sculptor, Jean Gougeon, the same who took such a great part in the adorning of the Palais du Louvre.

This little edifice ought to retain our attention a little longer. It symbolizes the craving of a whole nation for whatever is really beautiful, for the satisfaction of which she makes the proper sacrifices. Such gems scattered here and there in a large city amid lovely parks planted with beautiful trees go a long way toward giving happiness of a high grade to the citizens. Fortunate are those who can stand before such structures and sketch from them at various hours of the day or different seasons of the year, for at each moment a new charm is brought on by the atmosphere.

Observe now the variety of these nine structures in their mass, silhouette, dominance of either vertical or horizonthal, and see that what was planned to be massive, impressive, was left free from any encumbering ornaments or flat ordonnance. On the other hand, the fountain at Autun seems by its architectural lines and silhouettes to recall the actual water jets in their successive falls. The rhythm of the water was here borrowed by the artist since the actual flow lacked.

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*Éléments et Théorie de l'Architecture.

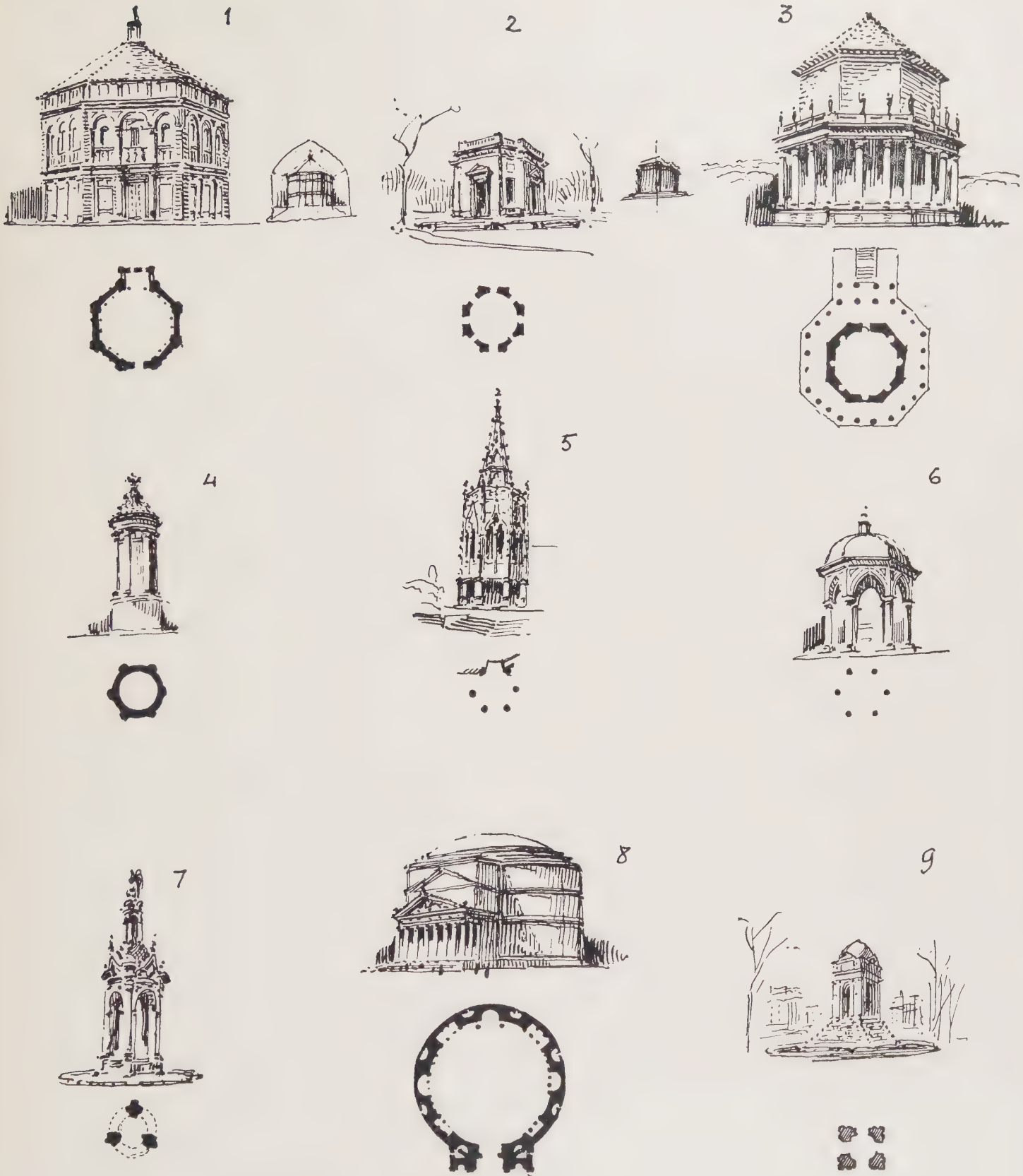


PLATE X

PLATE ELEVEN

In this plate we face some of the most interesting structures erected on combined-elements plans. Fig. No. 1, the funeral chapel of Louis XVI in Paris. How simple this plan is! and yet the author contrived to give the front a marked difference of monumental character over the sides and rear. It is a great lesson in the art of accentuating a special point without too sharp a difference in its architecture from the adjoining parts. An accent is intended to call the attention without too much exertion. Fig. 2 is a little church or chapel of St. Croix at Montmajour, France. The pyramiding effect is quite interesting and very simply obtained. It affords so much picturesqueness and yet the plan is so simple. Fig. 3 is a church near the Trajan Forum, Rome. Here, too, there is a pyramiding effect by far more majestic. To note the passing from the square base to the octagonal dome, the special treatment of the sides of the base which are flush with those of the octagon, the broken pediments carrying upward the featuring started around each door kept on through the ribs to the top of the little campanile. Fig. 4 is a little church outside Rome, on the outskirts near the St. Paul gate. It is interesting to find reminders of the front pediments on the sides. The pyramiding effect exists here, too, as in the preceding and following examples, though with its marked own characteristic, its individuality. Fig. 5, the famous church of Sta. Maria della Salute, in Venice. There are few monuments so fascinating when seen at the proper moment in the proper light and from the right point of view. Yet, how simple is its plan. This example—and for that matter all of them—ought to be drawn free-hand on large scale, to learn many points on featuring, on harmony, and on grace. The front pediment rises slightly above the adjoining cornice. How is the harmonizing effect produced? It is worth studying it in a monograph. The plan is exceedingly interesting. Observe the radiation of the small chapels and the feature formed by the large chapel facing the entrance which is flanked on both sides with two apses. Seen by a beautiful sunshine and with the thousands of reflections in the canal of Venice this view takes us to fairyland. Much more simple and unassuming is Fig. 6, the chapel of St. Michel d'Entraigues, France. The plan is clearly inspired from the antique.

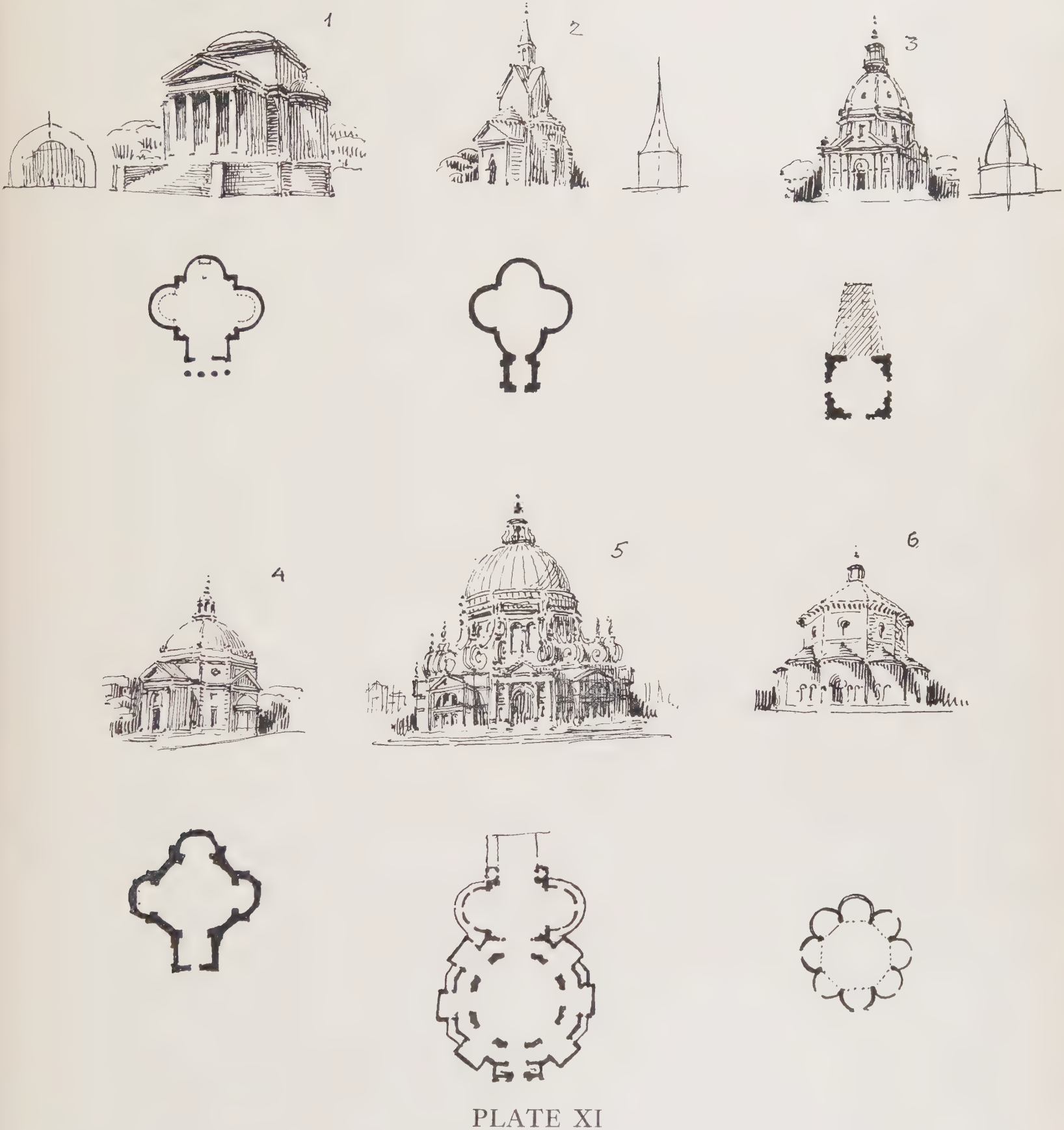


PLATE XI

PLATE TWELVE

See text opposite Plate Ten with reference to the Fountain of Innocents in Paris. It is advisable to make such drawings even on a much larger scale after having tried on small sketches the main massing, the silhouette, the main lights and shades, etc. There are many fine points with regard to proportions, arrangements and inventions that can best be seen by the student while drawing from the original.

PLATE XII

PLATE THIRTEEN

What charm is found in this little pavilion of the small Trianon! How simple the plan is, yet what magic effects are obtained. Instead of keeping all the sides of the outward octagon equal and even, four of them recede, thus justifying a slightly different treatment from the other four. In this manner a charming rhythm is introduced which is quite fitting for the destination of the structure and its location in a place where everything was planned to charm the eye.

Of course, it is very instructive to draw from its interior as well as its exterior, but these studies should never be made with the intention of placing these features, as they are, on any new problem we might have to face. But let us rather study these gems with the purpose of discovering what are the essentials in works of different characters, so that in turn we, too, may create without ever copying servilly the masterpieces of the past.

PLATE XIII

PLATE FOURTEEN

Though the sketch of the Baptistry of Florence be comparatively much larger than the one given in Plate Ten yet it might be re-enlarged two or three times, to make the details clearer. However, on this scale one may already see in what light compositions may be conceived. For the relative values of the parts among themselves and to the whole, even this scale is sufficient. These relations are shown distinctly by the main horizonthal and vertical shadows. On this scale the proportions are quite well marked. They appear as they would to the spectator standing at a reasonable distance from the edifice. From that distance one may judge of the effect of a comparatively low base, thus giving the upper part an aspect of more grandeur, and yet the two parts, the upper and lower, are intimately connected, the arches appearing as a continuation of the lower columniation. Note the delicate entablature of this lower order. Is it really the fourth of the column? By no means, and therefore there is a conclusion to be derived from it: the Vignola proportions are only an average.

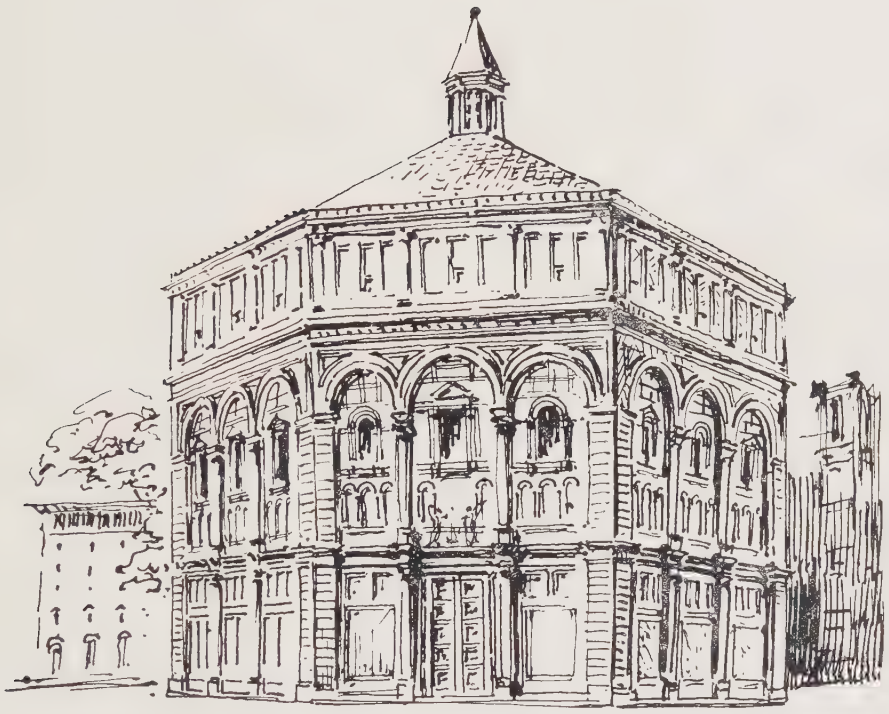
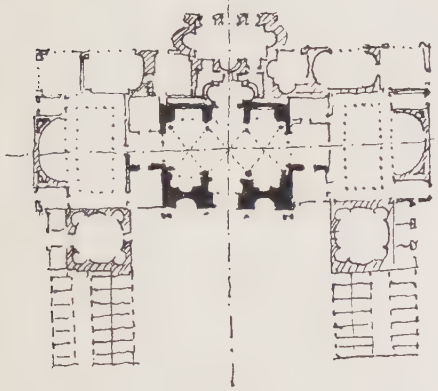


PLATE XIV

PLATE FIFTEEN

(See third chapter, on Incorporated Plan Elements.) It is advisable to study other examples in the same manner in plan, i. e., accentuating the particular element in the position of feature, or otherwise, and letting the rest just outlined clearly enough to show the connection between the feature and its approaches (see chapter on Semi-Complex Design). In this plate we see the simple plan element, the oblong, applied in famous structures. Fig. No. 1, Roman baths (see D'Espouy, Antiques). No. 2, the great lobby of the Pennsylvania R. R. Station, inspired very much from the antique. No. 3, the Church of La Madeleine, in Paris, and No. 4, the vestibule of the Public Library of New York, the latter being conceived on a much smaller scale than any of the other examples.



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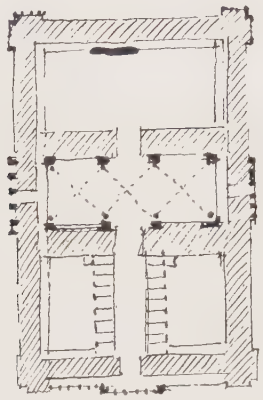

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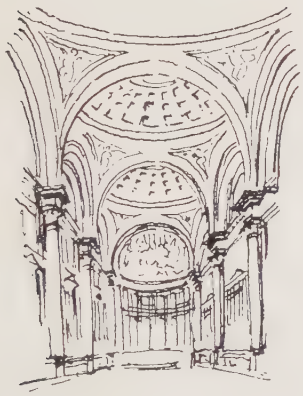

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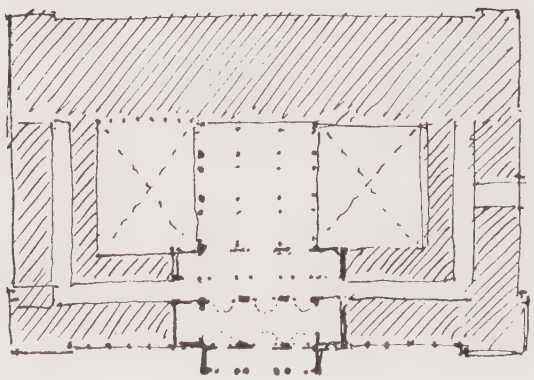
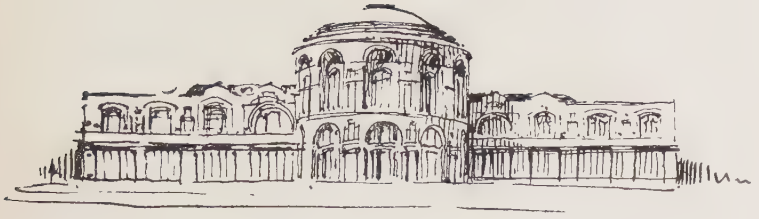


PLATE XV

PLATE SIXTEEN

Continuing the series of Incorporated Plan Elements as features, we have here No. 1, the round hall in the Roman baths of Caracalla (see in Guadet, Vol. 1, pl. 586, what he says about this splendid composition, its grand simplicity). No. 2 shows the plan of the former Hôtel de Salm, in Paris, now the palace of the Légion d'Honneur. No. 3, the famous stairway of the Château de Blois, France, and No. 4, the Château of Chambord, France. In all these examples the one outstanding fact is that there is abundance of air and light. Everywhere there is a decided effort for beauty, not of the kind that is superadded to the structure but coming naturally out of the general conception, of the very proportions of the parts and their relation to the whole. Nothing in them is niggardly done. Hence the result in most of them is of natural grandeur. Art lovers will spend delightful hours going over the crowning of the famous stairway of the Château of Chambord, which gem is called La Lanterne de Chambord. It goes without saying that such examples are not to be copied, but studied in the light of history, of the morals and customs of those times, and of the corresponding social state of those people. What beautiful simplicity is written on the Palais de la Légion d'Honneur"! What charming contrast and general outline! There is grace allied to dignity and simplicity, all traits characteristic of true culture.



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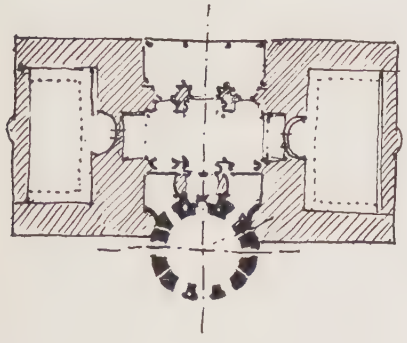

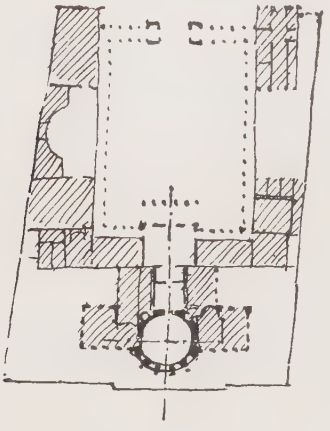

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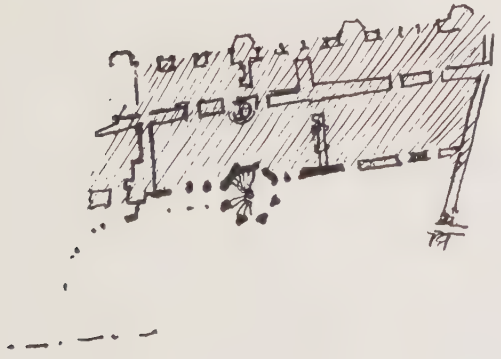


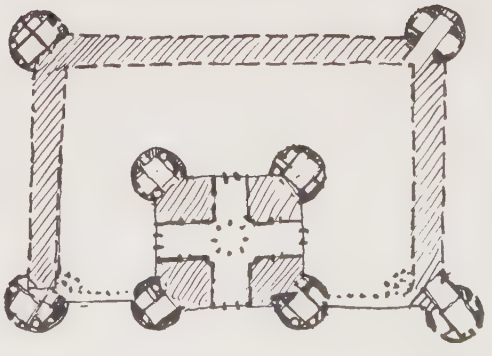


PLATE XVI

PLATE SEVENTEEN

The "Incorporated Plan Elements" in the form of features is here continued with the octagon and the circle (see Chapter III).

(1) Plan of a pavilion of Marly-Le-Roi Château and perspective interior view of the main octagonal hall.

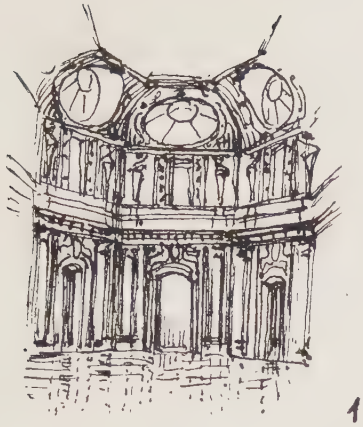
(2) Plan of the Library of Congress at Washington, D. C., in which the main octagonal reading-room is accentuated, the dependencies being merely suggested.

(3) Right—The rough plan of the Royal Palace of Caserta, Italy showing much grandeur in its simplicity (see Durand-Parallel of Edifices, for more ample information on this unique structure).

(3) Left—A large detail of the central pavilion of the same monumental composition showing the beautiful way in which the artist introduced light from four sides to this center.

(4) The circular stairway in New York City Hall. This feature has very much charm and ought to be better known.

(5) The Palladian Villa at Vicenza, Italy, showing the circular central main hall.



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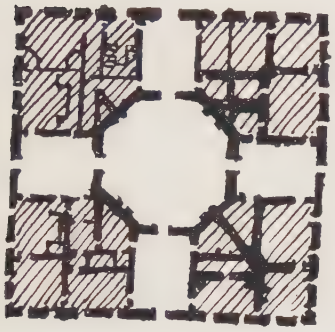

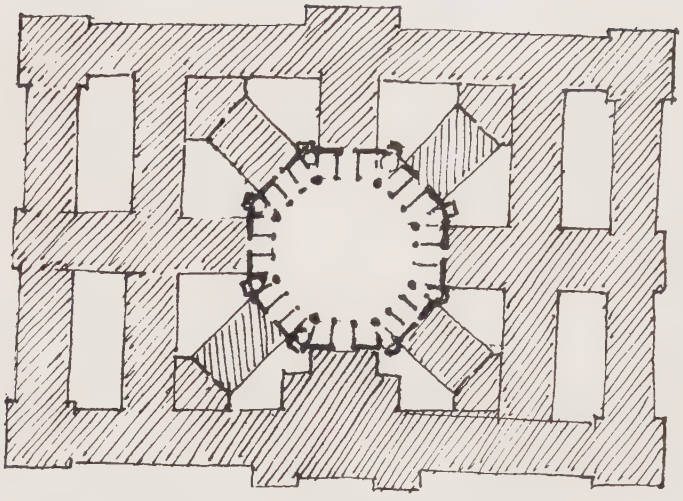

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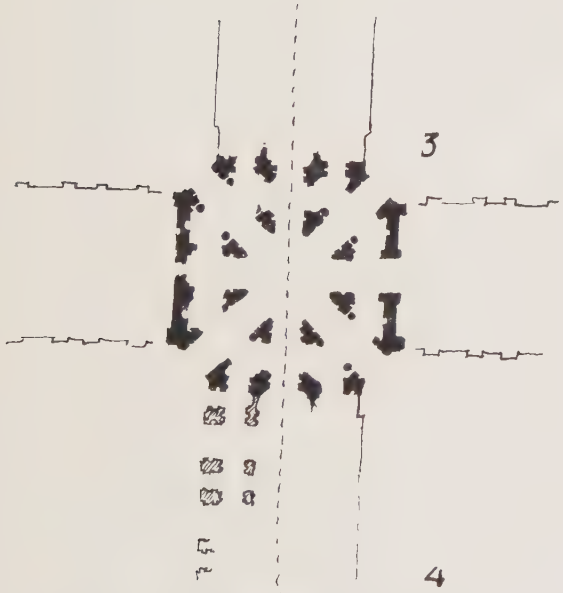

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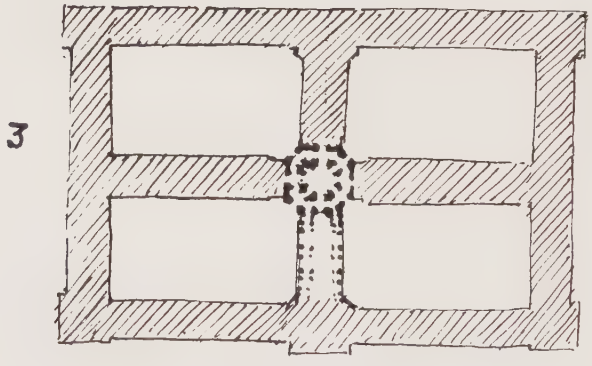

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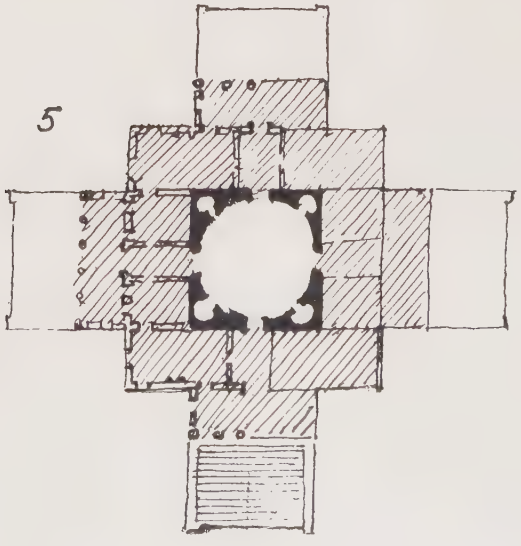

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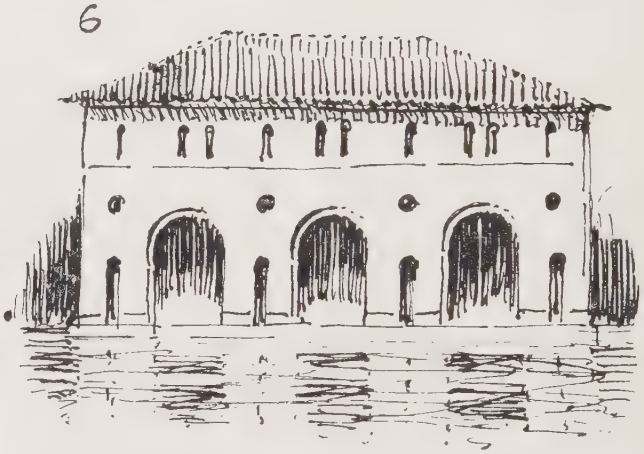
PLATE XVII

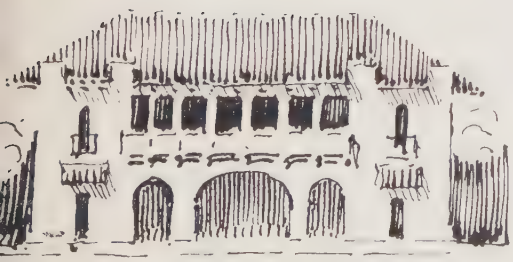
PLATE EIGHTEEN

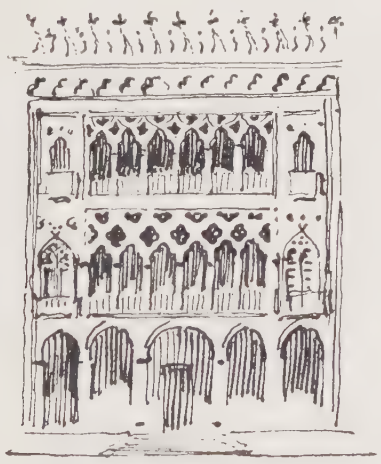
This plate illustrates partly the chapter on Units and that on Rhythm. Though the structure be a mere peasant's house, as long as there are piers and windows alternating in a certain order there springs forth rhythm. The difference in the proportions and materials make for the striking characteristics of rustic and urban.

Difference in magnitude of units will write eloquently and artistically as well as powerfully the difference between the private and the public. Then again the difference in treatment of units of same magnitude will often write the peculiar destination. Man works, improves his mind and gets distractions; in various structures each one of these needs special treatments to express their respective purpose.

Fig. No. 1, a glimpse of a farmhouse with its unassuming rhythm. No. 2, a fragment of a private urban structure. No. 3, a small public building. No. 4, an elaborate façade of a public edifice. No. 5 shows the same rhythm as No. 4, only with a much sterner treatment. No. 6, the same rhythm is shown here in its simplest application. Stripped of all the architectural treatment, it yet has its grandeur. No. 7, a little composition; note the harmony between the simple rhythm of the upper part and the lower, the good contrast between the vertical ends with solid dominant and the horizontal center restful and yet enlivened by the verticality introduced by the small intercolumniations. No. 8 shows simple rhythm with small units in one of the charming buildings of Venice. No. 9 is an attempt—already made by several architects—to introduce beauty at least by pleasing rhythm and proportions even in factory buildings. It is not as fanciful as No. 8, but more powerful. It is one more proof that expression does not depend on ornaments, nor on any applied orders put on as mere labels, but on such factors as proportions, contrasts, rhythm and the like.







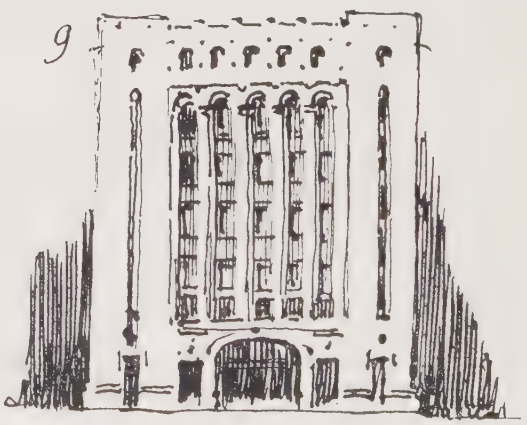
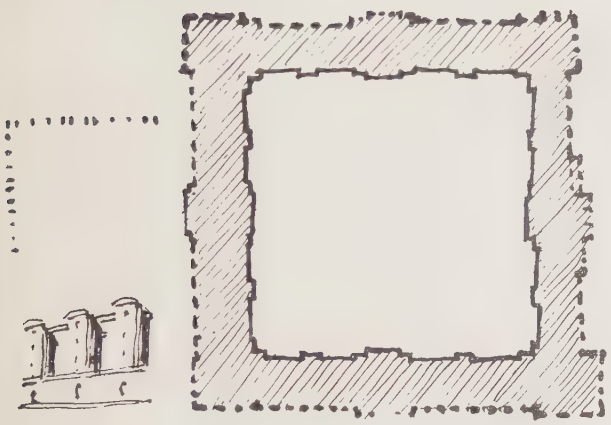
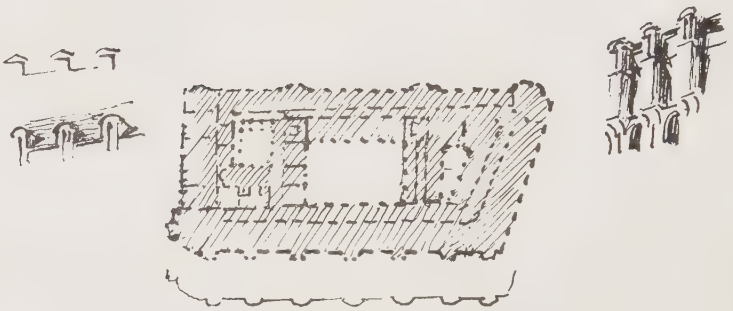


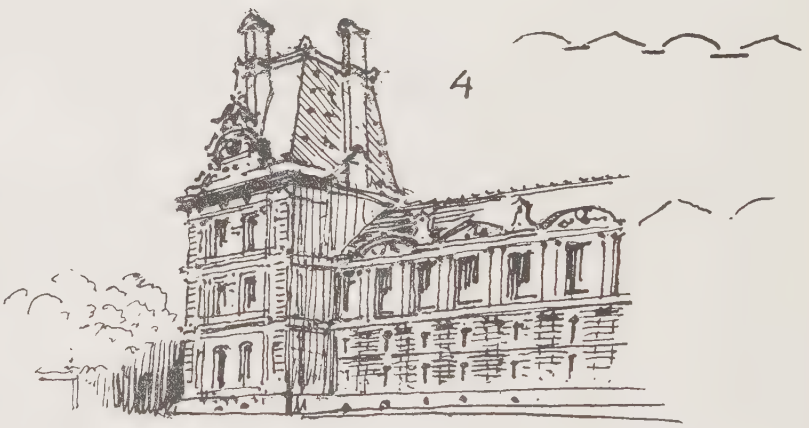
PLATE XVIII

PLATE NINETEEN

A continuation of the illustrations given on the preceding plate; it supplements it by examples selected among the classic extant building. Fig. 1, the famous Court of the Louvre in Paris. The elevations as well as the plan are rhythmical. The recurring features write an elegant, royal, and altogether pleasing rhythm. It is the source of great inspiration, and it is well to study the features themselves and see how harmony is observed throughout (see chapter on Rhythm). No. 2, a hotel on the Avenue des Champs Elysées, Paris, in which the rhythm is not a monotonous one either in plan or in elevation. No. 3 shows a very beautiful, solemn rhythm in the Palazzo de la Cancelleria in Rome. Majesty is very simply written here by the mere repetition of a grand unit on a long extent and by the contrast between the upper floors and the base of a very dignified simplicity. No. 4, the river front of the Palais du Louvre, Paris, in which part there is one of the most interesting rhythms ever written—except in some châteaux of the Renaissance (Pailly and others). There is a pediment crowning each other window, and these pediments alternate in form, being now triangular and now curved (see the various monographs on the Louvre). No. 5, the elegant and dignified rhythm of the Palazzo Bevilacqua, Verona, Italy. This front elevation has already inspired many architects.







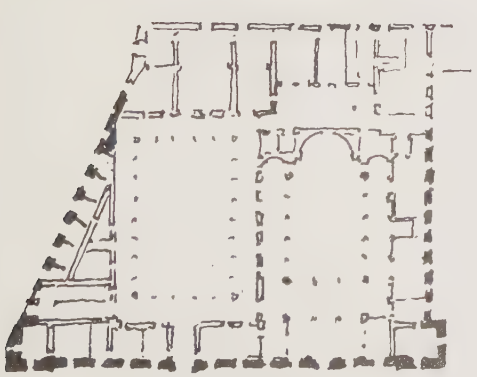


PLATE XIX

PLATE TWENTY

This plate specially devised to illustrate the chapter on Scale needs hardly any more explanation after what has been written on it in the chapter referring to this subject. The one fact worth emphasizing is that one cannot too much study nature with all one's might and love. There we find a magnificent book constantly open before us, and it is for us to learn how to read in it. Once we begin to achieve along this line there will be no end to it, and we shall be studying nature—and simultaneously architecture—while being in the city or in the country, in the street or at home, on the mountain peak or in a canyon. (See the chapter on Scale referring to this particular plate.)

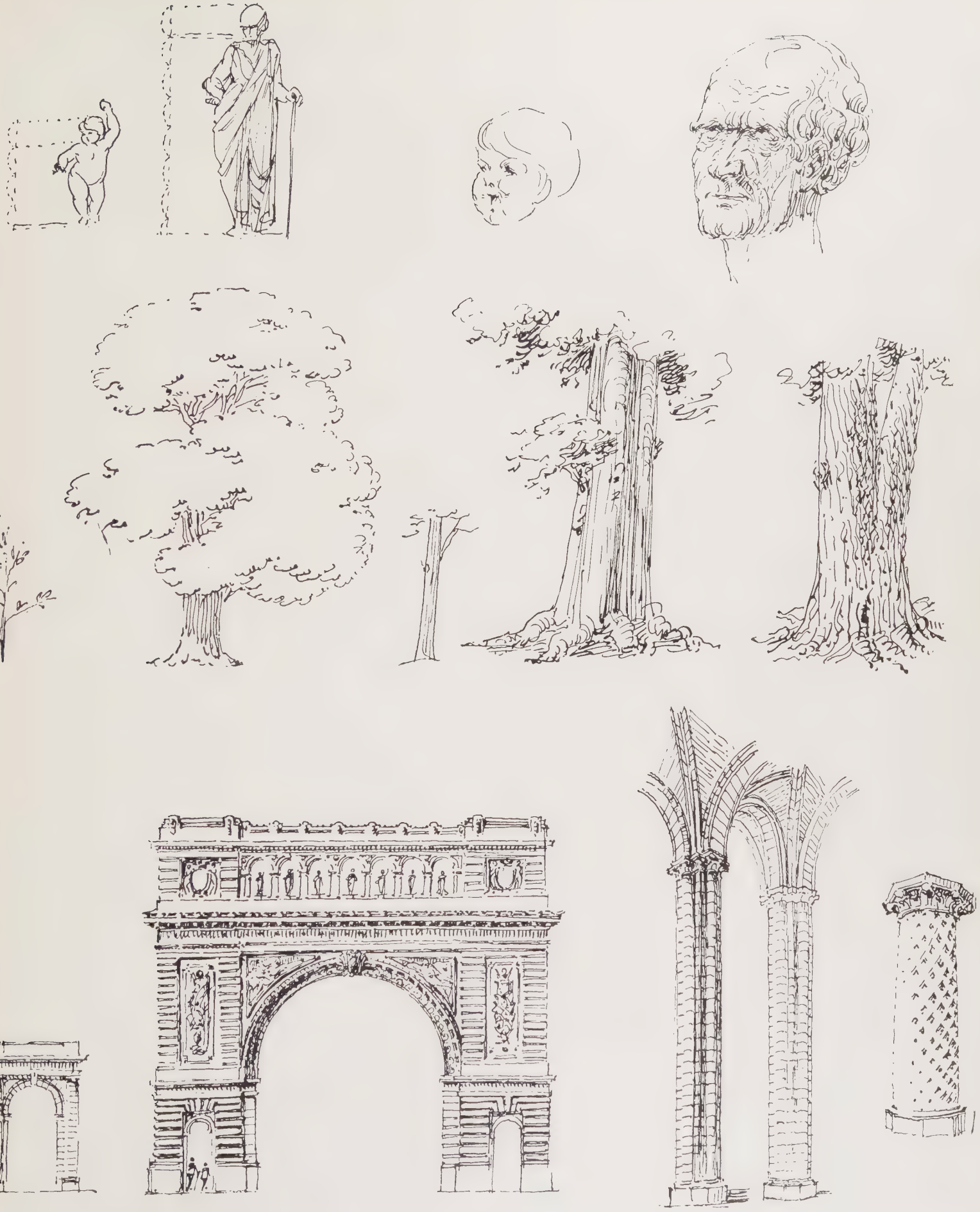


PLATE XX

PLATE TWENTY-ONE

This series of plates, up to the appendix, are related to the chapter on Expression. It is an attempt to show the student differences of expression on very small compositions, which differences are obtained by very simple means—by the choice of the proper line and form, or by proper accentuation of a structural detail. Given a very small lot several programs were imagined to be erected on it, each dealing with a different class of building: residential, funereal, amusement, military, utilitarian, semi-utilitarian and semi-decorative, commemorative, religious, etc., all on practically the same square or thereabout.

Above. In this plate we see a small gate-lodge, good-naturedly resting at the main entrance of the mansion. There is an expression of frankness, of simplicity allied to courtesy and a love of harmony. The elements of beauty, of interest are looked for in the very structural needs. An accentuation of the quoins, their ins and outs by longs and shorts, ushers in a gentle rhythm doing away with stiffness inseparable from too rigid lines (which have their place elsewhere). It is not irrelevant to show how in many cases it is possible to establish harmony between any structure and the nature surrounding it. Here the choice of Spanish tiles gives the eaves a rhythm matching that of the very leaves of the trees surrounding the little structure. It is like a person putting on a smile amid cheerful company or taking the proper attitude in the contrary case.

Below. The Funeral Chapel. In contrast with the gate-lodge where everything breathes comfort and joy of life, rests in a smiling little shelter, here one is urged to be "up and doing." The little structure is stern but not devoid of a note of grace. (It is a silent sermon: as busy as one may be, and how serious his occupation, he may yet find a smile for his fellowmen.) Here the sentiment of duty done is mainly expressed. Hardly any other ornament is used than the accentuation of the structural elements.

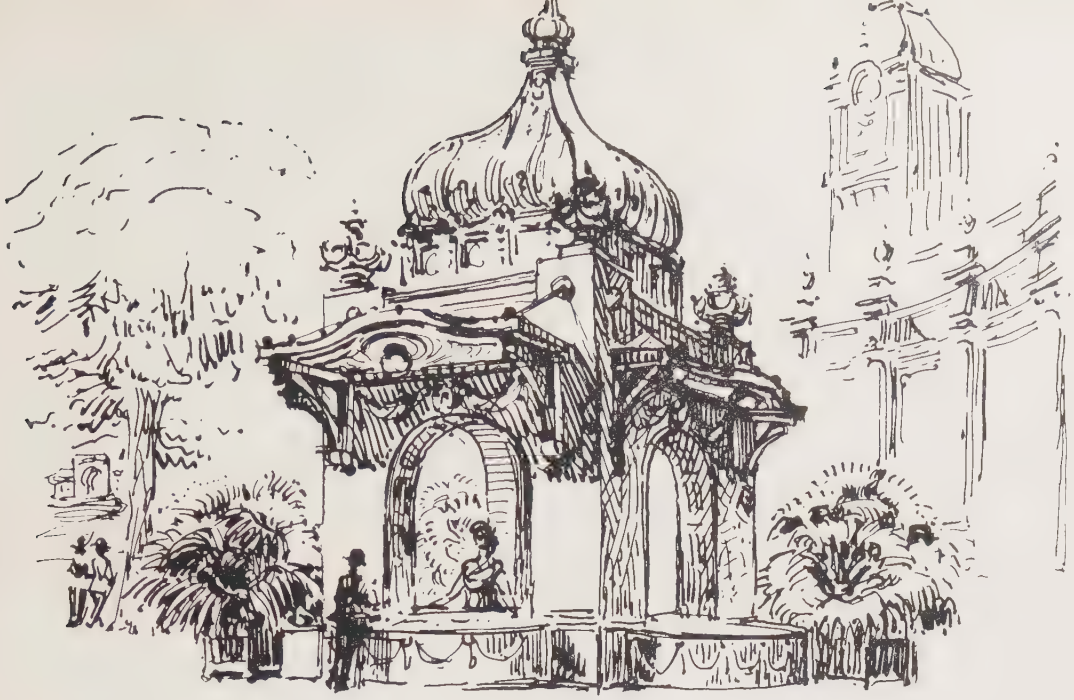
PLATE XXI

PLATE TWENTY-TWO

Above. The Little Kiosque. (See the chapter on Expression about this.) Though the plan be a square, yet there was possibility for introducing the curved line, which curve ushers in the smile (which I called elsewhere the Ionic note.) To combine the various lines and forms in harmony with the program is one of the most salient of the architect's attributes. A kiosque is to shed a note of gaiety in a place. Hence its present treatment. The quadratic plan checks in a great measure the tendency to fancifulness which might find its application in a different program.

Below. The Little Guardhouse. Here the prevailing idea is watchfulness and the main expression one of power and discipline. (There can hardly be any real power but goes together with discipline, be it in individuals or groups of people.) The rhythm of its small battlements marks to the eye the same sensation as the big drum would to the ear. It is massive in silhouette. While the horizontals are accentuated in places, on the other hand the verticals play their part in keeping the eye awake, the mind active, especially through the rhythmic spacing.

It is well to compare this structure with the others, and study their contrasts.



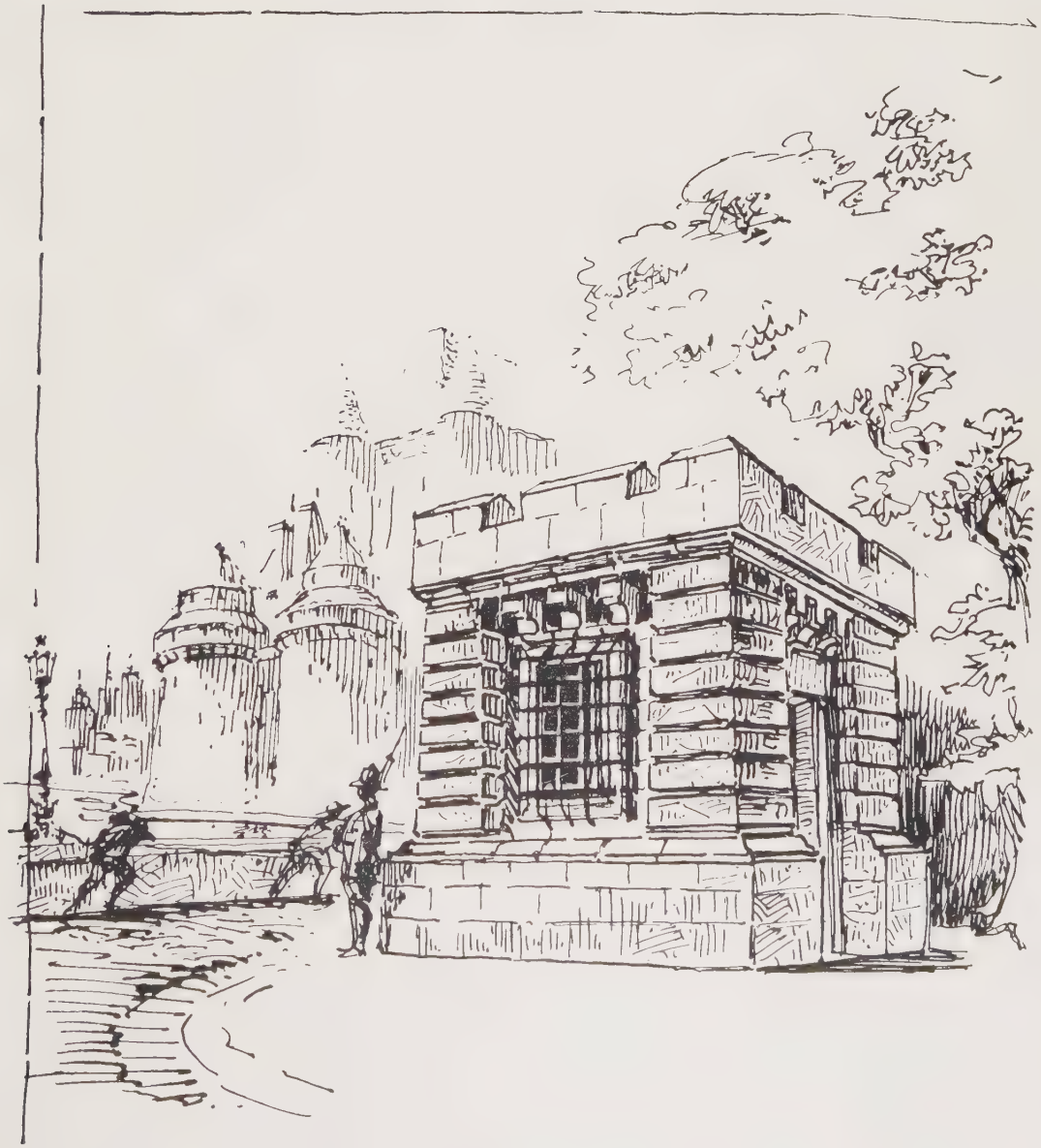


PLATE XXII

PLATE TWENTY-THREE

Above. The Waiting Station. It is nothing but a shelter, but it has the dignity that goes with a refined community. The playful rhythm is derived from the structural elements with a slight accent over the main piers on the eaves. A community owes courtesy to all its members, and no less to the outsiders. Observe the differentiation in the proportions with the other programs planned on the same lot in preceding plate.

Below. The Observation Pavilion. This program is treated quite simply and perhaps too much so. It forms a sort of umbrella for people who desire to view the attractive surroundings. Practically it answers the purpose; but we must never forget that a program is only half carried out if there is not a good amount of beauty together with its utilitarian purpose. Especially is this true in this case, for the little edifice is to be seen also in the perspective and must contribute its artistic note to the general effect.

PLATE XXIII

PLATE TWENTY-FOUR

Above. One of the pedestals of the famous statues on the Place de la Concorde, Paris. Only genius can invent such sculptural architecture. In that small square there are to be found all the qualities forming the prerequisites of classic masterpieces. It seems that the sturdy Doric, the graceful Ionic and the stately Corinthian were allied in the same contribution. It is well to sketch from originals until one is able to do it almost perfectly from memory. It is an excellent exercise for developing observation as well as the sense of aesthetics and proportions.

Below. The Small Garden House. Such a program requires freedom and something of fancy. Is it possible with the square plan? This figure gives the answer. The arch introduced in the composition goes a long way toward allaying what would be otherwise too stiff and unattractive, and the play of the lattice work does the rest, even though the general outline be a little plain. (How much more interesting it would have been if it had followed the little Temple of Love of Chantilly, all in lattice work; but here we are, the ground was square, and the attempt was made to introduce the proper note without too much exertion.)

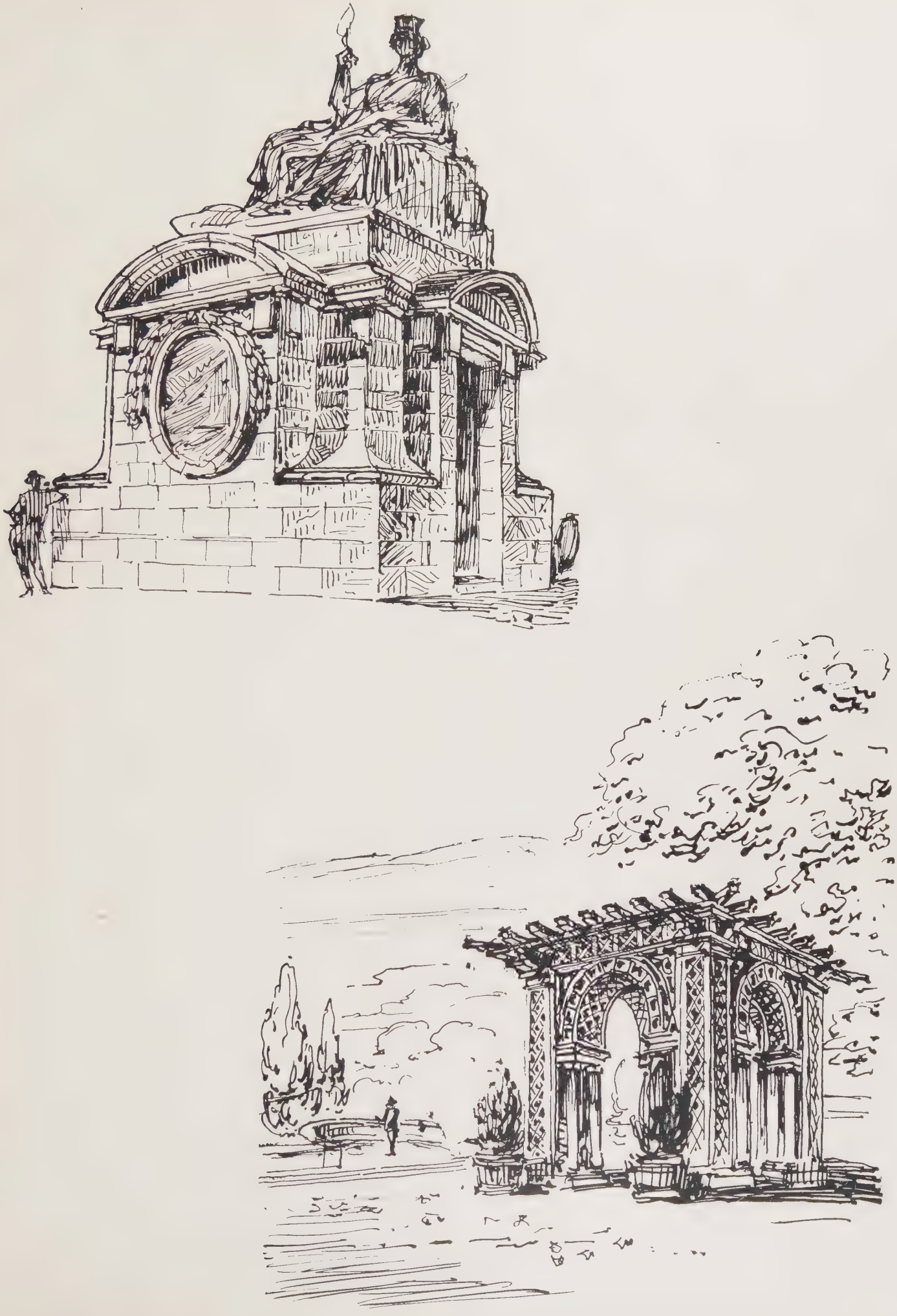


PLATE XXIV

PLATE TWENTY-FIVE

Above. Statue of the Colleone inVenice. About the same plan area as the average preceding programs and altogether different in aspect from any of them. Here the aim was purely decorative, the statue forming the climax of the whole. Should a pedestal always be treated in this fashion? By no means. Only here the location of the statue invited the blending of strength and grace, and this treatment adds not a little to the artistic enjoyment given to the onlooker. The artist, by conceiving his support as composed in the main of the six columns on the crowning entablature of which rests the equestrian statue, imparted life, as it were, to these columns, symbolizing in a way the admirers of the hero carrying him on their very heads. Architecture interpreted in this manner assumes a perfect sculptural character, only more transcendental. How simply is this achieved here! There is certainly a marked expression of purpose. The choice of the units and the rhythm impress one very favorably. The vertical dominates, but the horizontal plays a great part in both top and base.

Below. A Family Mausoleum. Many pages could be written on this subject which must here be summed up in a very few words. Expression is obtained not by negative characteristics such as the absence of windows like those in the gate-lodge, but by positive characteristics such as a very small window on each side; then the distribution of points of interest impart a rhythm proper to the program. The rhythm, very calm up to the pediment crowning the door, is here enlivened, and through the successive degrees of a comparatively swift succession, leads the eye to the urn containing—at least virtually, the deceased's ashes, his spirit having returned to his Creator. The culminating element of the composition points heavenward.

There are those who say "Architecture is not composed of symbols," or "Architecture cannot be discussed." I agree with them. There ought to be no necessity for explaining that which everybody should feel, just as in music.

PLATE XXV

PLATE TWENTY-SIX

The Clock Tower. Strength and action were here the allied factors. The whole is capped with a note of grace. The lower rustications mark forcefully the tranquil power of the horizontal. Mere scant accents on the quoins of the shaft retain the eye just long enough, leading it more gently to the climax of interest. Why not conceive the possibility of such a little tower serving, among other purposes, on some public places, as a policeman's shelter and also as a watch tower with a search light on top? No ornaments, but merely the play of the masses and a few accents, and there is all that is needed to impart expression to such architectural creations. However, an appropriate ornament could not but add artistic merit to the conception for the great benefit of the community.

PLATE XXVI

APPENDIX

APPENDIX

Applications to actual problems of the principles expounded in this book and suggestions as to modern programs executed in modern materials such as concrete.

MODERN languages owe a great debt to Latin, from which they are largely derived. Yet none would dare talk Latin in the street. He would not be understood by the masses. The language has evolved. Likewise has architecture. We inspire ourselves to a great extent from the past. It serves us as a foundation for our own conceptions; but we should never copy literally any of those works, firstly because it would be a pure plagiarism proving our inability to think for ourselves; secondly because the very difference in materials and in scale forbids it. But do we really have to reproduce exactly those masterpieces in order to achieve? It is precisely the purpose of this short treatise, as well as of this appendix, to demonstrate that this is by no means necessary. Only the same broad principles have to be followed.

We have seen in the chapter on EXPRESSION that it is not the mere apposition of an order on a structure that makes it Doric, Ionic or Corinthian, any more than the putting of a special garb is sufficient for a man to appear as praying, but the attitude of his whole body must tell it, and this will hold with men of all races and of all religions in the different countries of the world. Therefore, if we plan to impart majesty on a structure and if we think that we find it well expressed on some building of the past, we must analyze the interrelation of the masses in this example —irrespective of the details—its silhouette, and if possible find some other structure entirely different in the detail which expresses also the same majesty and we shall have there the finest lesson in interpretation of a principle. Cannot a Hindu express ecstasy though dressing differently from the Europeans? Likewise I may ask, "Is a church not a church because the details are done in the Renaissance style?" Once the masses are in the proper play and the proportions what they ought to be, with the proper dominance of line or direction, the details matter comparatively little. This is why mere arches such as those shown in Plate XXXI may express majesty in spite of their being quite simple in treatment. The main lines, the proportions and the rhythm are there to play the main part. This is what was shown partly in Plate XVIII, dealing with rhythm (Figs. 4, 5 and 6).

The above consideration is what prompted the drawing of a few suggestions of various structures for different destinations: educational, commemorative, decorative, etc., not only in using details and forms of the classic styles applicable preferably to certain materials but also in resorting to forms fitting concrete—this most democratic of modern

materials. These suggestions tend to show that great effects can be obtained even with a very unassuming material, provided that there be the proper spirit.

One of the suggestions deals with a small factory. As a rule structures of this class are not allowed very much study. But of late the captains of industry have awakened to the fact that sober but decent architecture with here and there a note of taste helps toward the welfare of the workers, which makes for more and better production of goods.

Plates XXIX and XXX are applications of the principle of rhythm and expression. Plate XXIX below shows a series of majestic arches, while in Plate XXXI the arches and their arrangement inspires more life and gaiety. Plate XXX shows a dignified and majestic rhythm in the form of a colonnade. Dignity, repose, are here expressed yet not without a note of grace, for the very proportions of the intercolumniations and the sculptural element offered by the columns and their proportions make for grace.

PLATE TWENTY-SEVEN

A Small Temple. We have seen in the preceding series of illustrations a similar composition with only two columns in its front. Here we have a larger composition of wider extent; hence the necessity of resorting to quite a number of the average units of this sort. Mere repetition is practically the solution of many architectural problems from the structural as well as from the æsthetic points of view. However, it is interesting to recall here the refinements of Greek temples, especially the Doric ones, in which the end columniation is narrower than the others, on account of the triglyphs and the metopes. This makes for much stronger corners. It writes forcefully the end of the composition. (See special treatises on the subject of refinements of Greek Architecture, among them Stuart and Revett.)

PLATE XXVII

PLATE TWENTY-EIGHT

Above. The House. A multiple of the unit we have seen in Plate XXI: the gate-lodge. How these units are juxtaposed and harmonized to give the impression of one whole composition and not of a fragment, is what interests us. How effective a simple classic pediment-crowned door is in the middle of this plain ordonnance of piers and windows. Peace is written here by the dominant horizontal, with enough liveliness brought in by the vertical windows. In such compositions everything predisposes to the calm of mind. The quoins affirm gently the ends of the design. A slight difference in height between the lower and the upper part is sufficient to assure harmony by not leaving the mind in doubt about whether there are or not more parts to come in the future to be juxtaposed to these. The pronounced projection of the roof is another element to be added to the dominance of the horizontal element, in which a certain pleasant rhythm may be worked in using the opportunity offered by the rafters. It enforces the idea of shelter.

Below. Hospital of the Abbey of Ourskamps (Oise, France). This plate and the following are intended to show the fundamental difference in simple programs between small and large ones. We have seen in Plate XXI (figure below) a small chapel. Here we have a hospital ward, the appearance of which has much of the church. In the small chapel the lot allowed only one unit; while here the length necessitates the use of several units of about the same type. This amounts to saying that for practical purposes there are certain standards of units, and the more length there is, the more of these units will be used. The accentuation of the essential points, such as the extremities of the structure, is one of the things expected in any good composition, so as not to give one the impression of a fragment. Here the heavy buttresses accomplish this purpose. In other cases it will be found that the last piers of a series of many are merely larger, so as to answer both the structural as well as the aesthetic necessities.

PLATE XXVIII

PLATE TWENTY-NINE

A Triumphal Arch. A repetition of the same unit: the columniation, with a glorious change in the middle. Here again the columns play the part of the enthusiastic fellows in the crowd bearing on their very heads the heroes of the day.

In this connection—the salient fact about the proportions of an order, i. e., the base, the shaft and the entablature, the first being the third of the shaft and the latter its fourth—what is to be really kept in memory is that these three parts ought to vary in proportion as in function, in many cases the upper and lower elements being very much reduced in order to give the shaft the appearance of more length; at other times this will be just the opposite; for instance, where the feeling of exertion is desired.

A mere change in the series of units—the middle one being wider, and an arch—what wonderful effect it produces even though the whole be crowned by the same horizontal mass. Rhythm plays a big part, both horizontally and vertically, in this case.

PLATE XXIX

PLATE THIRTY

A Colonnade. This plate and the following serve here as an appendix to the illustration of the chapter on Units and that on Rhythm. Great effects can be obtained with great simplicity when the proper units are in the right proportions and the appropriate rhythm. There can be nothing grander yet simpler in a monumental composition than a colonnade binding together various points of particular interests usually termed features. In many cases such colonnades assume a utilitarian aspect by the emphasis given to many floors in the height of the order, which effect cannot by far be as powerful as in the genuine colonnades seen in the antique temples. Such colonnades used in buildings of several floors appear sometimes as a desecration, when the genuine pier would be much more effective and truer because more structural. Great harm is done by misapplying classic architecture.

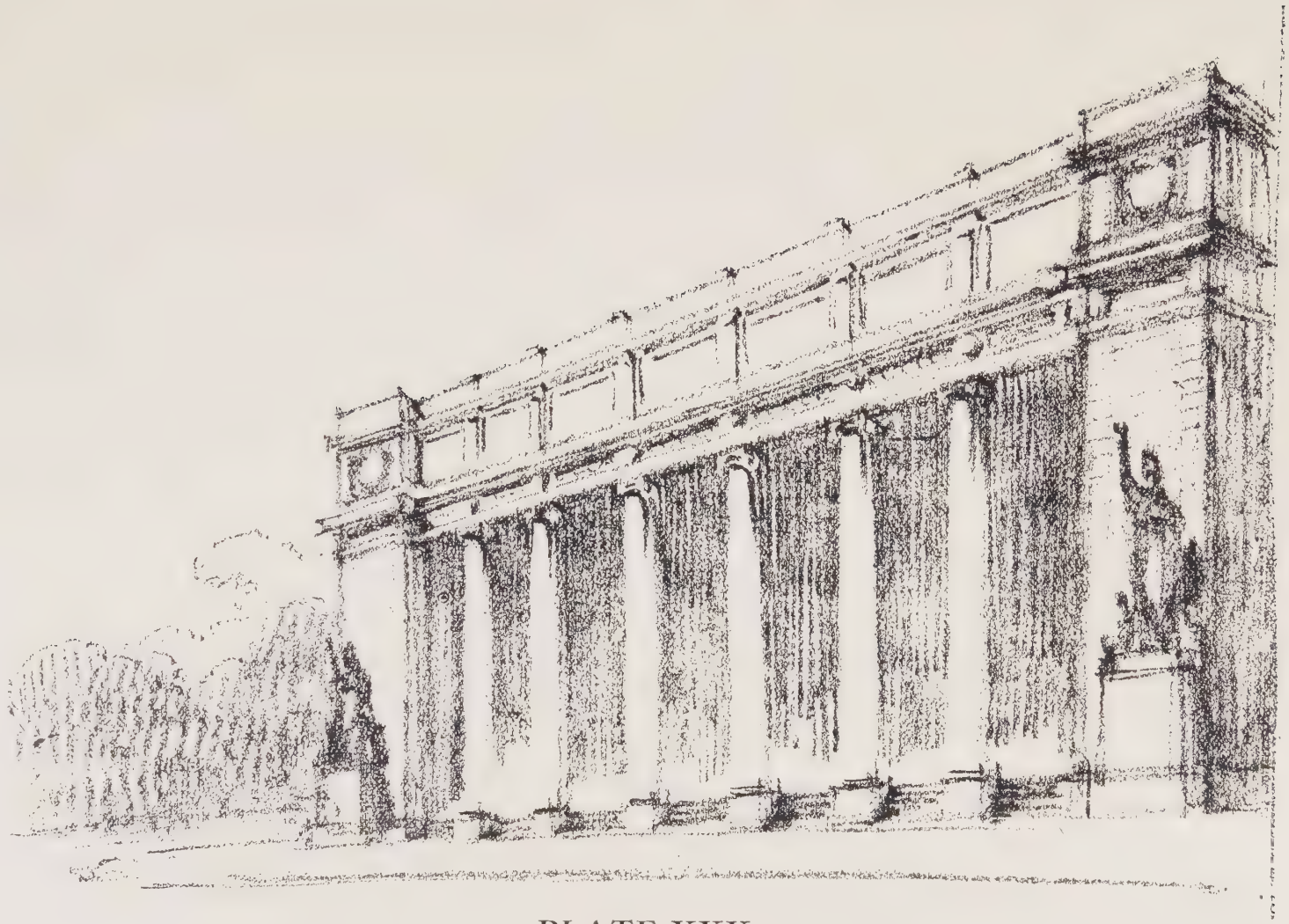


PLATE XXX

PLATE THIRTY-ONE

The Arcade. Chapters might be written on this unit and its many combinations, and this illustration is here given to supplement the illustrations given in plate XIX. On may get great effects from the use of simple arches as well as from the elaborate. The difference between them helps to mark the respective destinations and their proper character, or expression. This principle is gaining ground every day to the advantage of better education. Educated communities expect to find on the fronts of both temples of Labor and of Culture the expressions suiting their respective representations. In both dignity must be found, but in one it will be clad with more elegance than in the other, in which power will be shown instead. Variety of expression in architectural productions is a boon to the community. Besides serving practical purposes it adds materially to the interest aroused by the varied aspect of the streets.

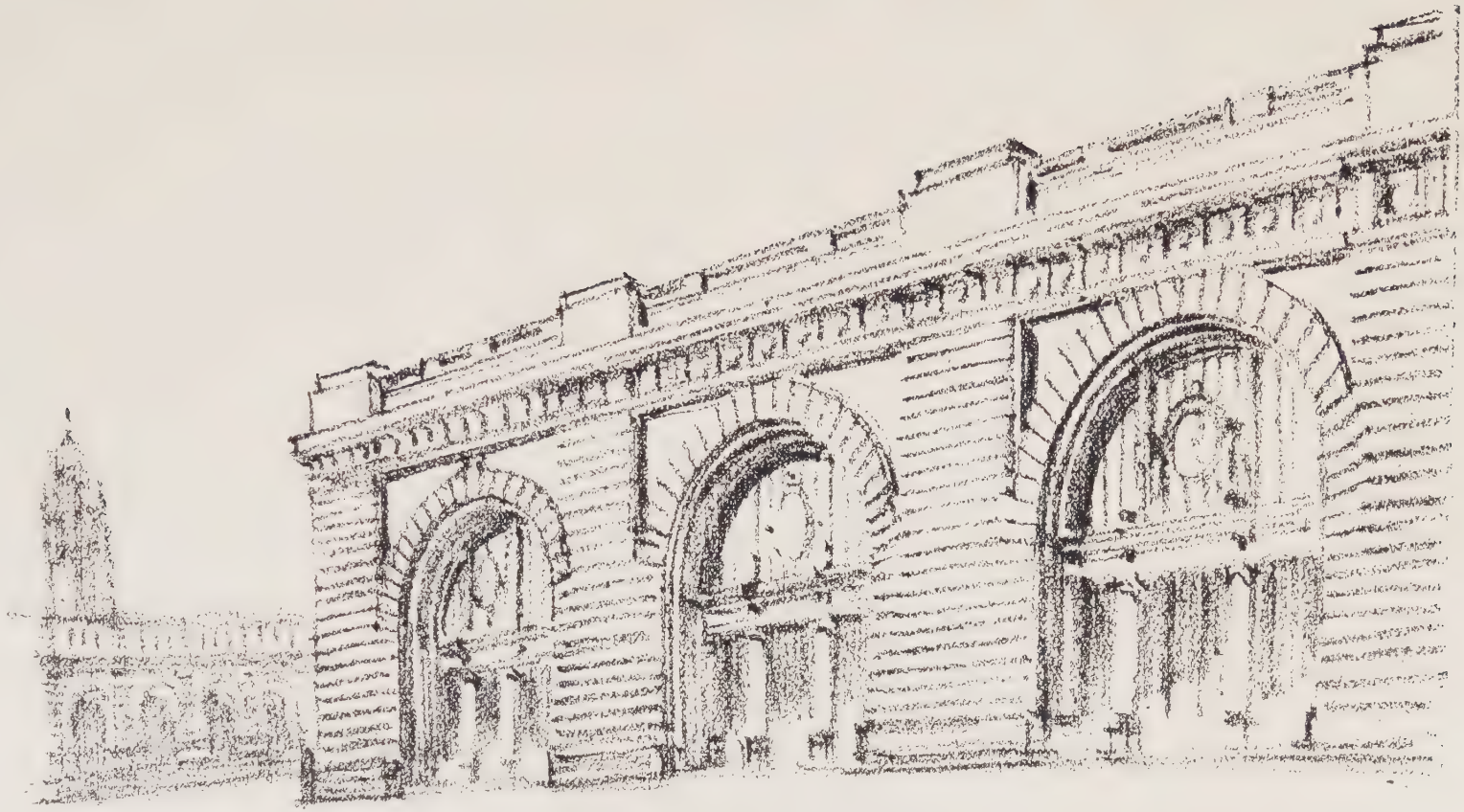


PLATE XXXI

PLATE THIRTY-TWO

In this arcade a more cheerful rhythm is seen than in the preceding plate; each one of these of course, finds its applications. It is here given as a suggestion of one of many combinations of groups of small arches alternating with piers. The series of small arches between two such piers form a unit. This unit may be made smaller at the ends to accentuate the limit of the series. Students will find it a fruitful exercise to search for a variety of such combinations and units in the numerous classic structures of antiquity, the Renaissance, and modern times.

PLATE XXXII

PLATE THIRTY-THREE

We have seen in Plate XXI and following examples of small and plain units, structures conveying a variety of expressions. The picture given in this plate is a suggestion of a new series showing corresponding expressions on far more monumental structures in which units of larger magnitude are used (here is where the chapter on Scale ought to prove interesting). It is left for the student to seek out monumental examples suggesting various destinations with much character or to attempt composing them. Wherever people gather to hear a lecture or a sermon and all wish to hear and see the speaker it is appropriate not to obstruct the sight with any piers; hence the coming forth of monumental units. This need is perfectly answered in both the Pantheon of Rome and in all the churches crowned with cupolas resting on pendentives. How to make the large unit appear so is one of the most interesting problems a student in architectural composition may encounter. Here is where the study of scale finds its application.

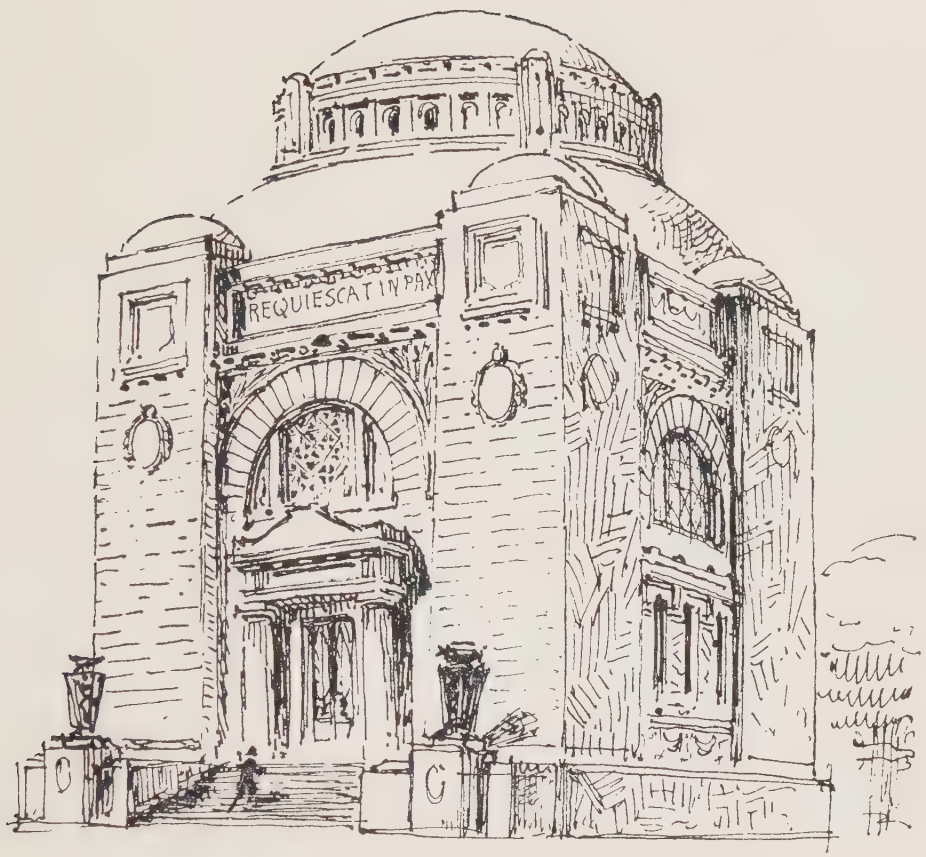


PLATE XXXIII

PLATE THIRTY-FOUR

A Pavilion in a Park. As explained in the appendix, these plates are suggestions worked out for the use of both the student and also, possibly, the full fledged architect. This plate, as some of the following, are attempts to create, in inspiring one's self from the underlying principles of great classic examples. The polygonal plan offers great architectural advantages in bringing naturally into play more shadows and lights and more changes in the perspective. Wherever decorativeness is looked for, this plan will naturally answer the purpose better. Besides, it offers many axes, to each of which may correspond some special point of interest in the general lay-out of the grounds, which is not to be neglected. Furthermore the divisions brought about by the polygonal plan are often desirable to avoid over-massiveness.

PLATE XXXIV

PLATE THIRTY-FIVE

Above. An Exhibition Pavilion. Following the same line of thought as in the preceding plates this is a composition conceived on a polygonal plan. It may suggest an exhibition pavilion or the like. Large units are here used. Special efforts were made to give them proper scale; which is also shown on the whole by a comparatively reasonable height. The number of small windows over the big arches go a long way toward imparting the latter very much scale. As the eye rises to the cornice, the rhythm grows more rapid until it reaches a climax of interest at the apex.

Below. A Band Stand. There is hardly any ornamentation on this structure, but proportions play the main part. The well-proportioned arch flanked with small columniations is in itself graceful as a unit; much more so when its rhythm is repeated, especially on a polygonal plan, as in this case. It suggests the gay motion of girls dancing in a circle as in that famous group of "La Danse" by Carpaux, adorning one of the piers of the Paris Opera House.

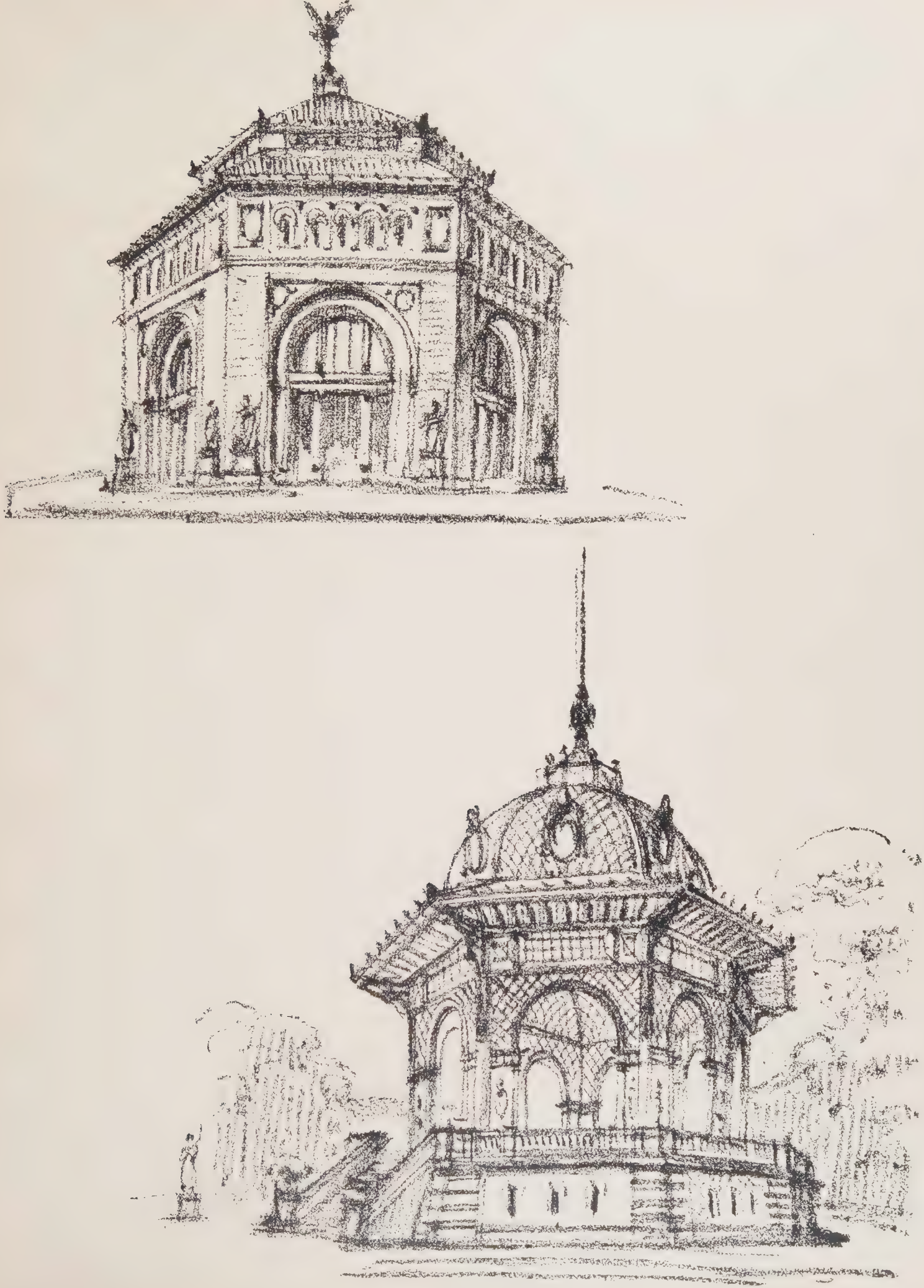


PLATE XXXV

PLATE THIRTY-SIX

Above. A Memorial Hall. As one looks upon famous structures from a distance (as well as famous pieces of sculpture, and for that matter human beings): St. Peter's, in Rome; St. Petro, in Montorio; the Tomb of Theodoric, at Ravenna, Italy, etc., one comes to the conclusion that what pleases most from the distance is not the detail—it could not be, the eye being hardly able to distinguish it—but the play of the masses, the graceful alternation of the straight and horizontal line with the majestic curve of the dome. The sketches in this plate and in some of the following were inspired by both this observation and also by the consideration that special materials need special treatment, in this case the special material being *concrete*. It would be useless to repeat again and again what has already been said so often about the absence of purely ornamental elements.

But one cannot insist too much on the effect of charm and expression to be derived from well studied proportions.

Below. One more suggestion of funereal architecture, in which the use of Doric mood is pushed to its limits by putting into play only the straight lines and surfaces, in observing the law of contrasts and of proportions.

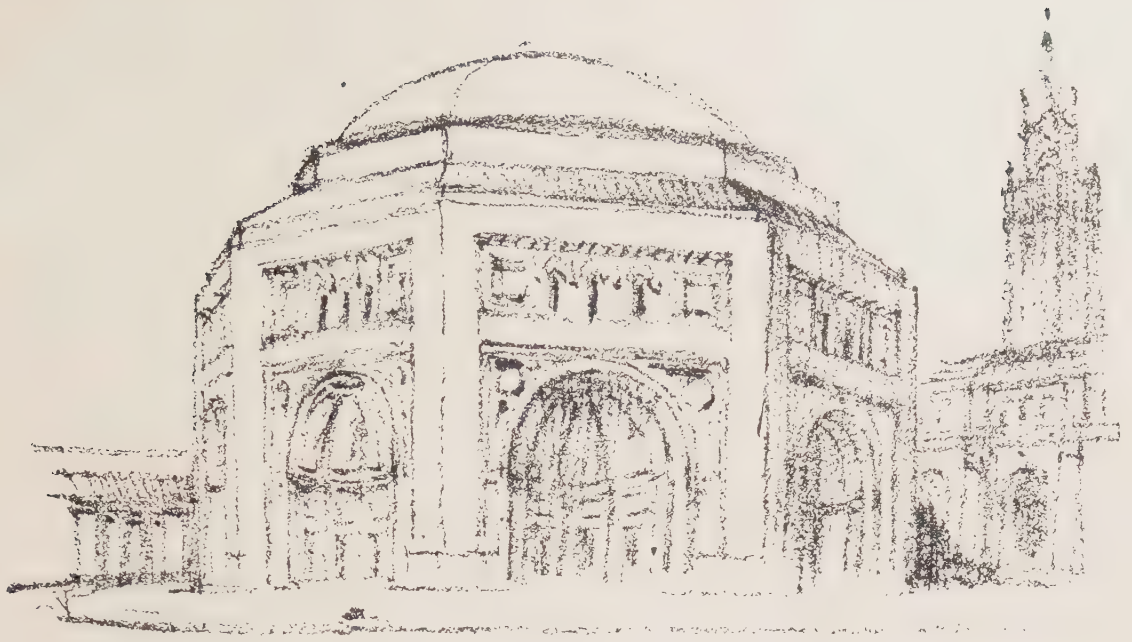


PLATE XXXVI

PLATE THIRTY-SEVEN

Above. A Pavilion of Industrial Art or of Building Materials. The order necessary inside is suggested outside with an added note of majesty which shines the more because of the simplicity of the whole. The structure being supposed of concrete, the appropriate simple forms were used.

Below. A Little Memorial Fountain in a Park. It is inspired by the principles of Gothic architecture, without reflecting that period style beyond the use of some buttresses. Another attempt of solving architectural problems in concrete without necessarily resorting to classic details expressive of a different method of construction.

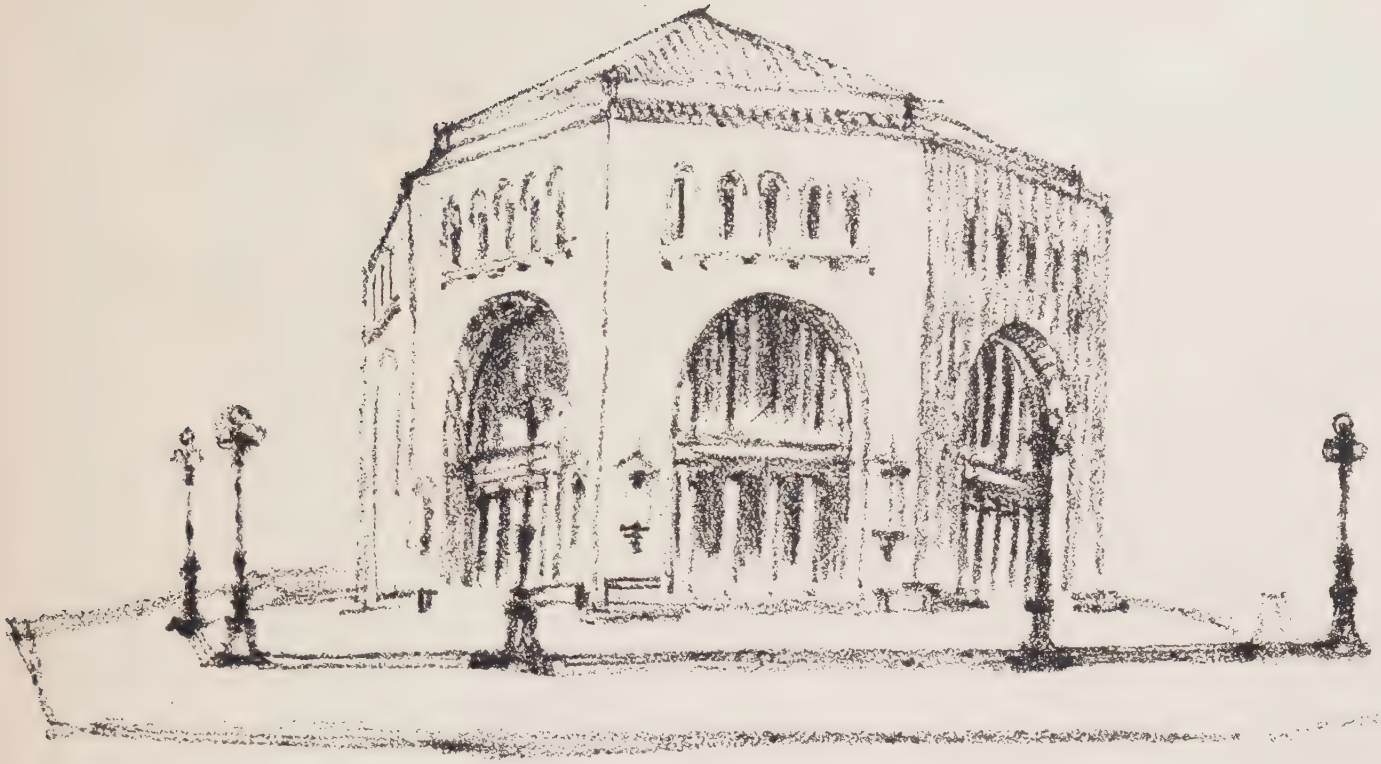
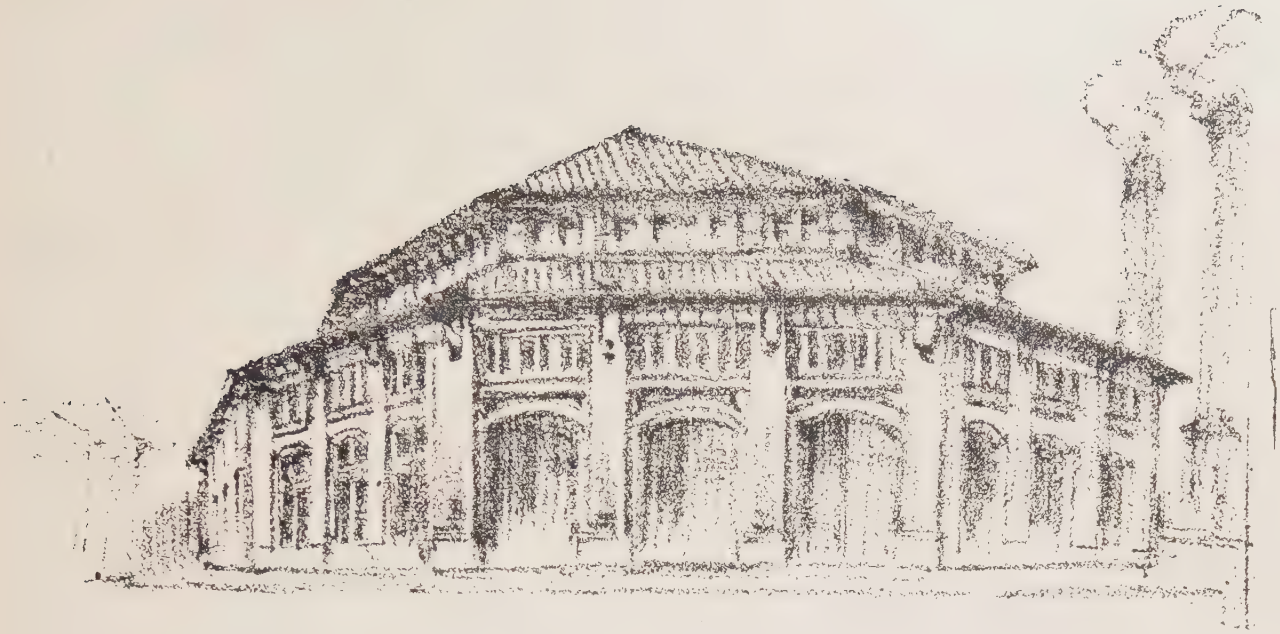


PLATE XXXVII

PLATE THIRTY-EIGHT

Above. A Factory Building on a Polygonal Plan. The object here is to assert that it is possible to secure a certain degree of beauty even in an industrial program. Good proportions with a proper rhythm in the distribution of windows and piers, etc., all this is quite often sufficient to give a certain amount of beauty to a building. Manufacturers have come to understand that it pays to give their plants decent appearances. It is for the architect to secure this in the simplest manner possible.

Below. A Lecture Hall in a General Exposition. This illustration will help one to understand the idea of scale and how it is imparted to architectural productions. The series of small windows of standard size being superimposed on the arch contribute to increase the impression of its magnitude. Its very proportions and its subdivisions help very much along this line.



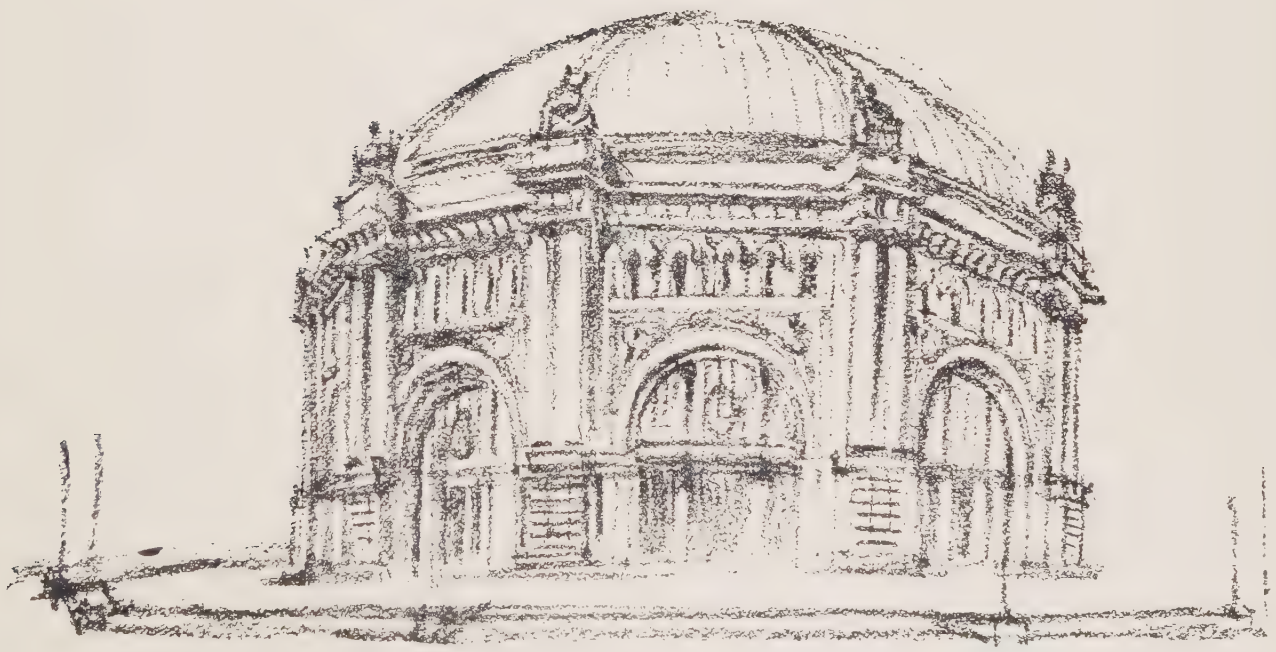


PLATE XXXVIII

PLATE THIRTY-NINE

An Art Shrine. Conceived with the idea of the free use of fundamental principles of composition and proper accentuation by means of artistic elements. Expression, units, rhythm, harmony—all these have been taken into consideration, and the general silhouette as well.

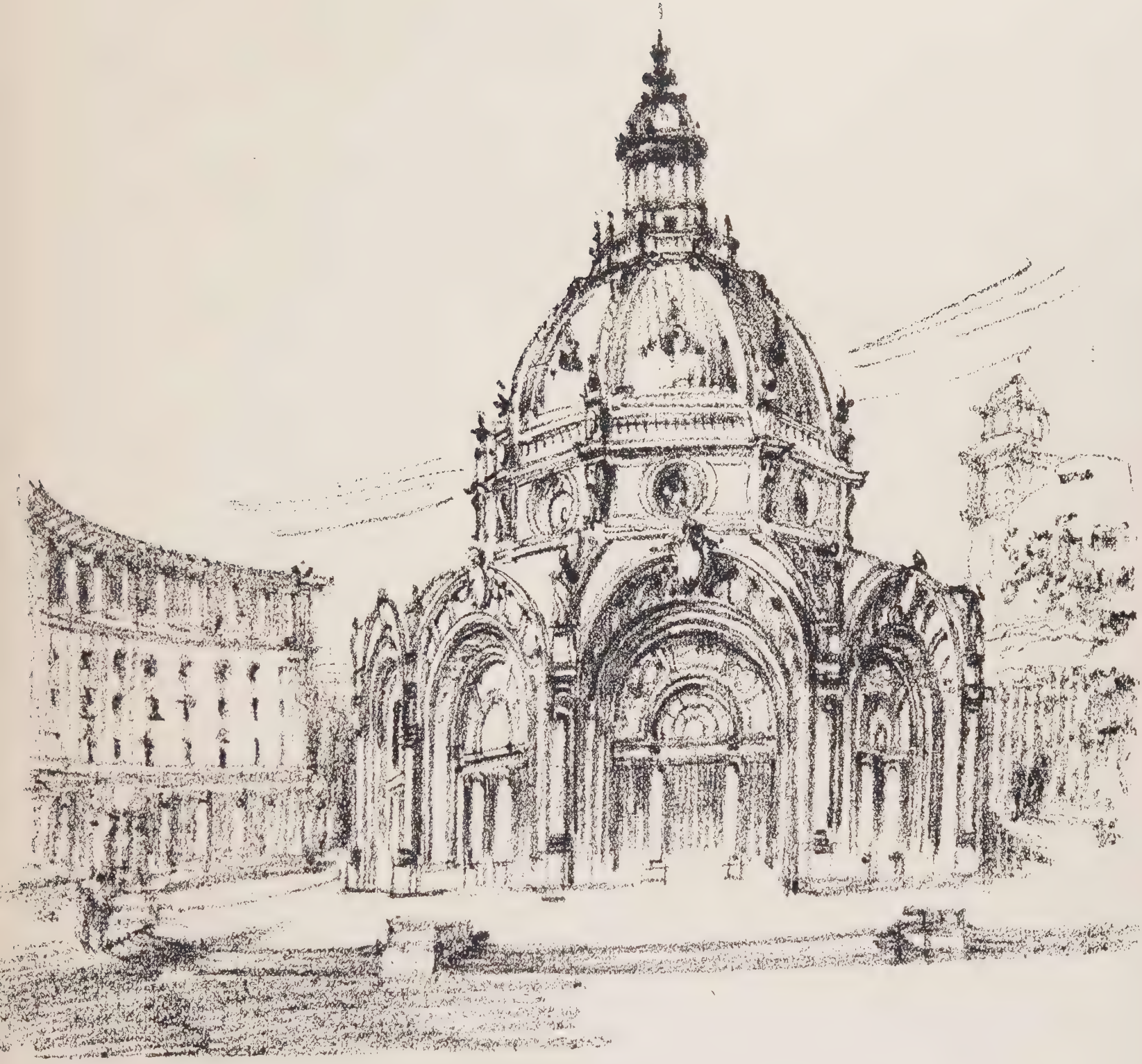


PLATE XXXIX

PLATE FORTY

A Memorial Spire. Here the attempt is to commemorate the deeds of the heroes of a great war with no idea of utilitarianism. While it is advisable to make memorials as useful as possible, yet there are places in which the erection of such monuments should be done for only spiritual purposes. The heroes did not give their lives for any material advantage. This memorial spire is therefore an endeavor to remind the present and future generations of the worthy deeds of the nation. Of course, in such structure, more than anywhere else, if possible, Truth should be enshrined. A simple majesty at the base is fitting. The rhythm in the distribution of ornaments goes increasing to a climax pointing Heavenward.

PLATE XL

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